Disposal and Reuse of Fleet and Industrial Supply Center, Oakland Vision 2000 Maritime Development

Draft Environmental Impact Statement/ Environmental Impact Report

SCH #96062010

Volume I

March 1997

FLEET AND INDUSTRIAL SUPPLY CENTER, OAKLAND
and
PORT OF OAKLAND, CALIFORNIA

DEPARTMENT OF THE NAVY
ENGINEERING FIELD ACTIVITY, WEST
NAVAL FACILITIES ENGINEERING COMMAND
900 COMMODORE DRIVE
SAN BRUNO, CALIFORNIA 94066-5006

IN REPLY REFER TO:

5090.1B
1852GM/EP-1218
5 March 1997

NOTICE OF PUBLIC HEARING

Draft Environmental Impact Statement/Environmental Impact Report for the Disposal and Reuse of the Navy Fleet and Industrial Supply Center, Oakland, California

7:00 P.M.
TUESDAY, APRIL 8, 1997
WEST OAKLAND PUBLIC LIBRARY
OAKLAND, CALIFORNIA

A public hearing to receive oral and written comments concerning the Draft Environmental Impact Statement/Environmental Impact Report (EIS/EIR) for the Navy disposal and Port of Oakland reuse of the Navy Fleet and Industrial Supply Center, Oakland (FISCO) will be held at 7:00 p.m. onTuesday, April 8, 1997 in the West Oakland Public Library, 1801 Adeline Street, Oakland, California. Federal, state, and local agencies, and interested individuals are encouraged to participate in the environmental review process for the Draft EIS/EIR. In the interest of available time, each speaker will be asked to limit oral comments to five (5) minutes or less, and may submit lengthy or more detailed comments in writing to the addresses listed at the end of this announcement.

The Draft EIS/EIR addresses the potential impacts to the environment that may result from the disposal of FISCO via special legislation (Public Law 104-106 Section 2867) to the Port of Oakland. The Defense Base Closure and Realignment Act (Public Law 101-510) of 1990, as implemented by the base closure process of 1995, directed the Navy to close FISCO. The EIS/EIR has been prepared in accordance with Section 102 (2)(c) of the National Environmental Policy Act (NEPA) of 1969 as implemented by the Council on Environmental Quality regulations (40 CFR Parts 1500 - 1508) and the California Environmental Quality Act (CEQA). The Navy will be the EIS lead agency for NEPA documentation and the Port of Oakland will be the EIR lead agency for CEQA documentation. The Federal Highway Administration is a cooperating agency for the EIS and the California Department of Transportation is a responsible agency for the EIR.

FISCO is within the planning jurisdiction of the Port of Oakland. The Port of Oakland Vision 2000 Program proposes development of ship, railroad, and truck freight handling facilities to meet the anticipated demand for transportation services in the San Francisco Bay area and northern California and an intermodal port of national and international commerce. The Vision 2000 Program also includes development of public waterfront access and marine habitat enhancement.

The joint EIS/EIR provides a program level analysis supporting both the Navy NEPA requirements to describe potential environmental impacts associated with the property disposal at FISCO, and the Port of Oakland CEQA requirements to analyze environmental impacts of implementing the Vision 2000 Program.

The Draft EIS/EIR evaluates a No Action Alternative and four Port of Oakland reuse alternatives. The No Action Alternative would result in the federal government indefinitely retaining ownership of the nonreversionary Navy property. Under the No Action Alternative, the Navy would continue leasing property to the Port of Oakland under the existing 50 year lease agreement as allowed by Public Law 102-484, and supported by the 1995 base closure decisions.

The four reuse alternatives combine the common land use components of a railroad terminal, marine terminals, public waterfront access and marine habitat enhancement. As FISCO is within the Port of Oakland jurisdiction and is designated as a Port Priority use area in the April 1996 San Francisco Bay Conservation and Development Commission and the Metropolitan Transportation Commission Seaport Plan Update, these four alternatives emphasize port-related activities. The Port of Oakland Vision 2000 Program may require additional property outside the FISCO boundary in order to meet the objectives of the Program.

The Draft EIS/EIR is available for review at the following public libraries in the vicinity of FISCO:

West Oakland Public Library; 1801 Adeline Street, Oakland, CA
Oakland Main Library; 125 14th Street, Oakland, CA
Alameda Main Library; 2264 Santa Clara Avenue, Alameda, CA

Written comments concerning the Draft EIS/EIR must be submitted no later than April 22, 1997 to:

Commanding Officer
Engineering Field Activity West
Naval Facilities Engineering Command
Attn: Mr. Gary J. Munekawa, Environmental Planning Branch,
Code 1852GM,
900 Commodore Drive
San Bruno, California, 94066-5006

For additional information on the Draft EIS, contact Mr. Munekawa at the address shown above, telephone (415) 244-3022 or fax (415) 244-3737. For further information regarding the Port of Oakland Vision 2000 Program or the Draft EIR, please contact Ms. Loretta Meyer, Port of Oakland, Environmental Assessment Section, 530 Water Street, Oakland, California 94607, telephone (510) 272-1181, or fax (510) 465-3755. A limited number of additional Draft EIS/EIR documents are available on request.

John H. Kennedy
JOHN H. KENNEDY
Head, Environmental Planning Branch

Enclosure

DRAFT ENVIRONMENTAL IMPACT STATEMENT (EIS)/ ENVIRONMENTAL IMPACT REPORT (EIR) AND SECTION 4(f) EVALUATION FOR THE DISPOSAL AND REUSE OF FLEET AND INDUSTRIAL SUPPLY CENTER, OAKLAND VISION 2000 MARITIME DEVELOPMENT

Lead Agency for the EIS:	US Department of the Navy
Cooperating Agency for the EIS:	Federal Highway Administration
Lead Agency for the EIR:	Port of Oakland, California
Responsible Agency for the EIR:	California Department of Transportation
Title of Proposed Action:	Disposal and Reuse of Fleet and Industrial Supply Center, Oakland, CA
Affected Jurisdictions:	City of Oakland, California, and Alameda County, California
Designation:	Draft EIS/EIR and Section 4(f) Evaluation Submitted Pursuant to 42 U.S.C. 4332(2)(C) and 49 U.S.C. 303
State Clearinghouse #:	SCH# 96062010

ABSTRACT

Pursuant to the Defense Base Closure and Realignment Act of 1990, Public Law 101-510 Title XXIX, as implemented by the base closure process of 1995, the Fleet and Industrial Supply Center, Oakland (FISCO) is scheduled for closure in September 1998. This joint EIS/EIR has been prepared in accordance with National Environmental Policy Act (NEPA) and California Environmental Quality Act (CEQA) statutes and guidelines to support disposal of FISCO via special legislation (Public Law 104-106 Section 2867) to the Port of Oakland. The EIS/EIR analyzes the potential environmental consequences from the proposed Navy disposal and Port of Oakland reuse of FISCO. The NEPA federal action evaluated in this EIS/EIR is the disposal of nonreversionary Navy property, while the local CEQA project evaluated is the proposed reuse of the FISCO site, as well as some additional property outside the FISCO boundary, in accordance with the Port's Vision 2000 Program.

The EIS/EIR evaluates four reuse alternatives: Maximum Marine Terminal/Maximum Rail Terminal, Minimum Marine Terminal/Minimum Rail Terminal, Maximum Marine Terminal/Minimum Rail Terminal, and Reduced Harbor Fill. Also evaluated is the No Action Alternative, which is the closure of FISCO with the nonreversionary property remaining in federal ownership. The EIS/EIR analyzes potential environmental impacts relating to land use, socioeconomics, public services, cultural resources, visual resources, biological resources, water resources, geology and soils, traffic and circulation, air quality, noise, utilities, and hazardous materials and waste.

Potentially significant and mitigable environmental impacts include impacts to land use, public services, cultural resources, visual resources, biological resources, water resources, geology and soils, traffic and circulation, air quality, and hazardous materials and waste. Mitigation measures identified in the EIS/EIR reduce all of these potential environmental impacts to acceptable levels. A potentially significant and not mitigable impact is related to automobile, truck, rail, and ship traffic-related air pollutant emissions generated in all of the reuse alternatives. Regional growth will also generate cumulative traffic, air quality, and noise impacts that would be significant and unmitigable. Remediation of contaminated areas will continue to be the responsibility of the Navy.

For Further Information:

US Navy
Engineering Field Activity West
900 Commodore Drive
San Bruno, California 94066-5006
Attn: Mr. Gary J. Munekawa, Code 1852GM
Phone: (415) 244-3022
Fax: (415) 244-3737

Port of Oakland
Department of Environmental Assessment
530 Water Street
Oakland, CA 94607
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Phone: (510) 272-1181
Fax: (510) 465-3755

March 1997

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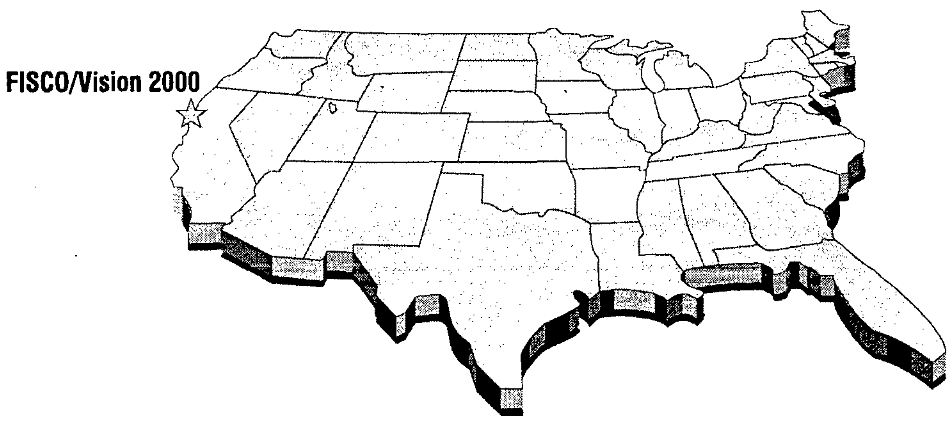
LIST OF ACRONYMS

AAFES	Army/Air Force Exchange Service
AB	Assembly Bill
ABAG	Association Of Bay Area Governments
AC Transit	Alameda-Contra Costa Transit District
ACHP	Advisory Council on Historic Preservation
ACM	Asbestos-Containing Material
AHERA	Asbestos Hazardous Emergency Response Act
ALUC	Airport Land Use Commission
AM	Morning
APL	American Presidents Line
ARB	Air Resources Board
AST	Aboveground Storage Tanks
ATC	Authority To Construct
BAAQMD	Bay Area Air Quality Management District
BART	Bay Area Rapid Transit
BCDC	Bay Conservation and Development Commission
BCP	Base Realignment And Closure Cleanup Plan
BEAP	Base Exterior Architecture Plan
bgs	Below Ground Surface
BMP	Best Management Practice
BRAC	Base Realignment And Closure
BTEX	Benzene, toluene, ethylbenzene, and xylenes
C&D	Construction & Demolition
CAD	Confined Aquatic Disposal
Cal EPA	California Environmental Protection Agency
CAM	California Assessment Manual
CARB	California Air Resources Board
CBC	California Building Code
CCR	California Code Of Regulations
CDFG	California Department Of Fish And Game
CDHA	Community Development And Homeless Assistance Act
CEQ	Council On Environmental Quality
CEQA	California Environmental Quality Act
CERCLA	Comprehensive Environmental Response, Compensation And Liability Act
CERFA	Community Environmental Response Facilitation Act
CFR	Code Of Federal Regulations
CIWMB	California Integrated Waste Management Board
CMA	Congestion Management Agency
CMP	Congestion Management Plan
CNEL	Community Noise Equivalent
CNPS	California Native Plant Society
CO	Carbon Monoxide
CRHC	California Register of Historic Resources
CSC	California Species Of Special Concern
CTA	Census Tract Area
CWOR	Coalition For West Oakland Revitalization
CZMA	Coastal Zone Management Act
dB	Decibel
dBA	A-Weighted Decibel
DBCRA	Defense Base Closure And Realignment Act

dbh	Diameter At Breast Height
DCA	Dichloroacetylene
DDD	Dichlorodiphenyl Dischloroethane
DDE	Dichlorodiphenyldichloroethane
DDT	Dichlorodiphenyltrichloroethane
DERP	Defense Environmental Restoration Program
DLA	Defense Logistics Agency
DoD	Department Of Defense
DOT	US Department Of Transportation
DRMO	Defense Reutilization And Marketing Office
DTSC	Department Of Toxic Substance Control
DWR	California Department Of Water Resources
EBMUD	East Bay Municipal Utility District
EBS	Environmental Baseline Survey
EFA	Engineering Field Activity
EIR	Environmental Impact Report
EIS	Environmental Impact Statement
EPA	U.S. Environmental Protection Agency
EPCRA	Emergency Planning And Community Right-To-Know Act
ESA	Endangered Species Act
ESI	Expanded Site Inspections
FEMA	Federal Emergency Management Agency
FFSRA	Federal Facility Site Remediation Agreement
FIFRA	Federal Insecticide Fungicide And Rodenticide Act
FHWA	Federal Highway Administration
FOSL	Finding Of Sustainability To Lease
FOST	Finding Of Sustainability To Transfer
FPMR	Federal Property Management Regulations
FS	Feasibility Study
FY	Fiscal Year
gpm	Gallons Per Minute
ha	Hectare
HABS	Historic American Building Survey
HAER	Historic American Engineering Record
HARP	Historic Archeological Resource Protection
HMA	Hazardous Materials Assessment
HOV	High Occupancy Vehicle
HRS	Hazard Ranking System
HWCL	Hazardous Waste Control Law (California)
HWMP	Hazardous Waste Management Plan
I-580	Interstate Route 580
IRP	Installation Restoration Program
ISTEA	Intermodal Surface Transportation Efficiency Act
km	Kilometer
kV	Kilovolt
kVA	Kilovolt Amperes
Leq	Equivalent Noise Levels
LOS	Level Of Service
LRA	Local Redevelopment Authority
LTMS	Long-Term Management Strategy
m	Meter

MCE	Maximum Credible Earthquake
MCM	Thousand Circular Mils
mg/L	Milligrams per Litre
MHEA	Marine Habitat Enhancement Area
MLLW	Mean Lower Low Water
mm/yr	Millimeters Per Year
MMRP	Mitigation Monitoring And Reporting Program
MOA	Memorandum Of Agreement
mph	Miles Per Hour
MTC	Metropolitan Transportation Commission
MTMCWA	Military Traffic Management Command Western Area
NAS	Naval Air Station
NAVTELCOM	Naval Telephone and Computer Systems
NCP	National Contingency Plan
NCTS	Naval Computer Telecommunication Services
NCSO	Navy Caretaker Site Office
NEPA	National Environmental Policy Act
NESHAP	National Emissions Standards For Hazardous Air Pollutants
NFA	No Further Action
NMCO	Naval Medical Center Oakland
NMFS	National Marine Fisheries Service
NMSC	Navy Military Sealift Command
NO_2	Nitrogen Dioxide
NOA	Notice Of Availability
NOC	Notice Of Completion
NOI	Notice Of Intent
NOP	Notice Of Preparation
NOx	Nitrogen Oxides
NPDES	National Pollutant Discharge Elimination System
NPL	National Priorities List
NRHP	National Register Of Historic Places
NUAD	Not Suitable for Unconfined Aquatic Disposal
NWI	National Wetlands Inventory
O&M	Operation And Maintenance
OBC/CTF	Oakland Base Closure/Conversion Task Force
OBRA	Oakland Base Reuse Authority
OEA	Office Of Economic Adjustment
OFEE	Oil-Filled Electrical Equipment
OPR	Office Of Parks And Recreation (Oakland)
OSHA	Occupational Safety And Health Administration
OUSD	Oakland Unified School District
OWS	Oil/Water Separator
PA	Preliminary Assessment
PAH	Polynuclear Aromatic Hydrocarbons
Pb	Lead
PCB	Polychlorinated Biphenyl
PCE	Tetrachloroethylene
PG&E	Pacific Gas & Electric Company
PCEs	Passenger Car Equivalents
PL	Public Law
PM	Evening
PM_{10}	Particulate Matter (Inhalable Component)

PRC	Public Resources Code
PRG	Preliminary Remediation Goal
PSH	Phase Separated Hydrocarbons
psig	Pounds Per Square Inch Gauge
PTO	Permit To Operate
PVC	Polyvinyl Chloride
PWCSFB	Public Works Center San Francisco Bay
RA	Remedial Action
RAMP	Radon Assessment And Mitigation Program
RAP	Remedial Action Plans
RCRIS	Resource Conservation And Recovery Information Systems
RCS	Radiological Close-Out Surveys
RD	Remedial Design
RI	Remedial Investigations
RO	Removal Action
ROD	Record Of Decision
ROG	Reactive Organic Compounds
ROI	Region Of Influence
RWQCB	Regional Water Quality Control Board
SARA	Superfund Amendments And Reauthorization Act
SPCC	Spill Prevention, Control, and Counter Measures
SD	Site Discovery
SF	Square Feet
SF-DODS	San Francisco Deep Ocean Disposal Site
SH	State Highway
SHPO	State Historic Preservation Officer
SI	Site Inspection
SIP	State Implementation Plan
SO_2	Sulfur Dioxide
SOx	Sulfur Oxides
SPCCP	Spill Prevention Control And Countermeasures Plan
SUAD	Suitable for Unconfined Aquatic Disposal
SVOCs	Semi-Volatile Organic Compounds
SWPPP	Storm Water Pollution Prevention Plan
Ti	Titanium
TOC	Total Organic Carbon
TPH	Total Petroleum Hydrocarbons
TRPH	Total Recoverable Petroleum Hydrocarbons
TSCA	Toxic Substances Control Act
TSS	Total Suspended Solids
UBC	Uniform Building Code
USDA	US Department Of Agriculture
USFWS	United States Fish And Wildlife Service
UST	Underground Storage Tank
V/C	Volume To Capacity (Ratio)
VOCs	Volatile Organic Compounds
WGCEP	Working Group On California Earthquake Probabilities
WSE	Water Service Estimate
WWII	World War Two
Zn	Zinc
$\mu g/L$	Microgram per Litre



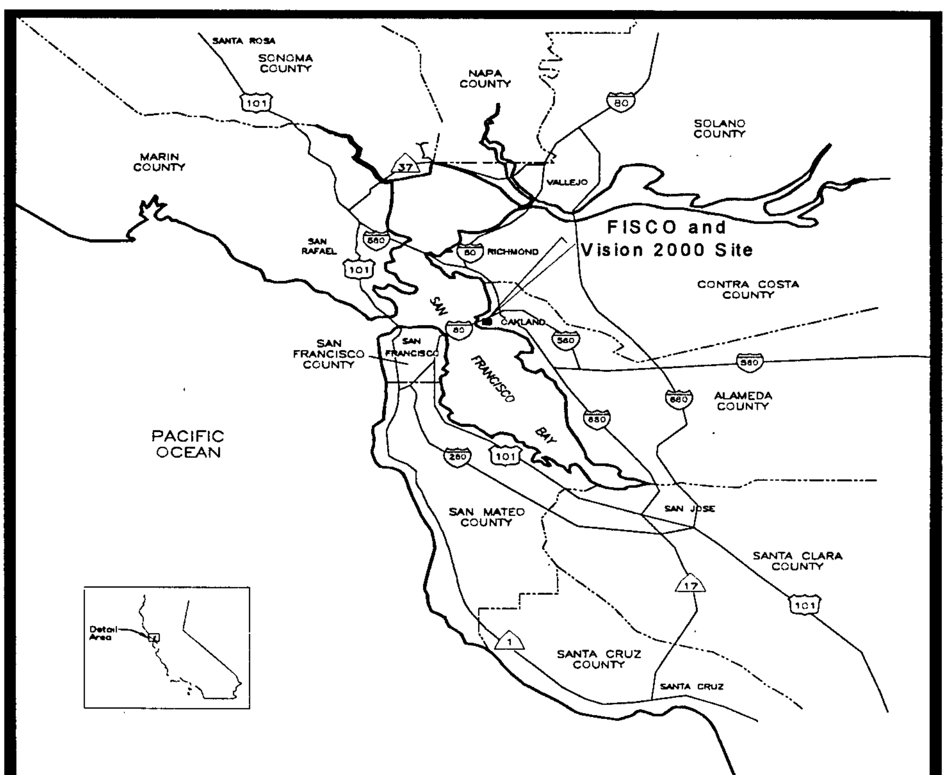
EXECUTIVE SUMMARY

EXECUTIVE SUMMARY

INTRODUCTION

This joint environmental impact statement/environmental impact report (EIS/EIR) evaluates the potential significant impacts to the environment that may result from the Navy disposal and Port of Oakland (Port) reuse of the Fleet and Industrial Supply Center, Oakland (FISCO) in Oakland, California. The Defense Base Closure and Realignment Act (BRAC) of 1990, as implemented by the base closure process of 1995, directed the Navy to close FISCO (P.L. 101-510, Section 2687).

Figure ES-1
Regional Location



This document has been prepared in accordance with the following:

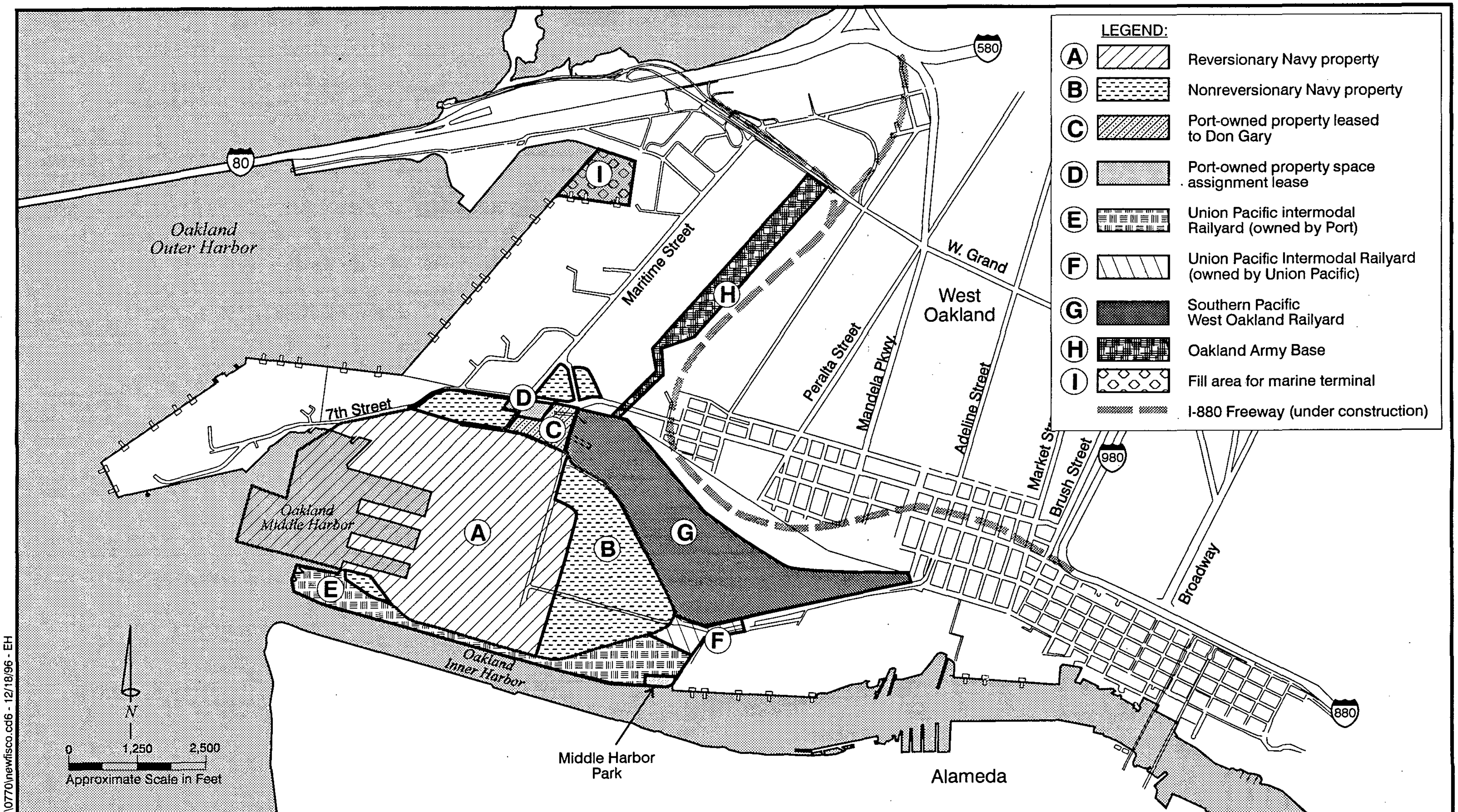
- The National Environmental Policy Act (NEPA) of 1969;
- The Council on Environmental Quality (CEQ) regulations on implementing NEPA;
- Navy guidelines; and
- The California Environmental Quality Act (CEQA) statutes and implementing guidelines.

The federal action evaluated in this EIS/EIR is the disposal of nonreversionary Navy property and structures, while the local project evaluated is the reuse of FISCO as proposed in the Port's Vision 2000 Program. The location of FISCO and the Vision 2000 Program project site is shown on Figure ES-1. Photographs of the FISCO/Vision 2000 project site are reproduced in Appendix A.

Approximately 392 acres of the 528-acre FISCO site will revert to the Port's ownership when the Navy has no further use of the site. The 392 acres were deeded to the Navy by the City of Oakland in May 1940 for the price of one dollar. This property sale was recorded with a reversionary clause stating that the property would revert (i.e., be returned) to the Port should the Navy decide not to use the property for a naval supply depot or for other naval or military purposes. An additional 136 acres of property were acquired by the Navy from a number of other parties, bringing the total FISCO acreage to 528. The additional 136 acres did not include any stipulation for reversion to the Port; this property is referred to as the nonreversionary Navy property. The project site, including the location of reversionary and nonreversionary Navy property at FISCO, is shown on Figure ES-2.

The California State Lands Commission has jurisdiction over ungranted tidelands and submerged lands owned by the state and the beds of navigable rivers, streams, bays, estuaries, and inlets within its boundaries (Public Resources Code, Section 6301). This type of land is commonly referred to as public trust land subject to use restrictions by the State Tide Land Trust. This trust has been established by state law to protect public interests in commerce, navigation, fisheries, water-oriented recreation, habitat, and environmental study. The majority of nonreversionary Navy property is not subject to the State Tide Land Trust; however, the Port's proposed reuse of both reversionary and nonreversionary Navy property at FISCO is consistent with appropriate uses for public trust lands.

Most of the 136 acres of nonreversionary Navy property at FISCO already has been leased to the Port on a 50-year lease under the provisions of previous special legislation (P.L. 102-484, as amended by P.L. 103-160), and the rest is expected to be leased by the time of closure. Under P.L. 104-106, which further



The project site has been divided into FISCO reversionary property (Area A) and nonreversionary property (Area B)and non-Navy property (Areas C through I).

Source: Port of Oakland 1996

Proposed Project Site Subareas

Fleet & Industrial Supply Center Oakland
and Port of Oakland

Figure ES-2

Port of Oakland

amended P.L. 102-484, the Navy has discretionary authority to convey the 136 acres of nonreversionary Navy property directly to the Port upon FISCO's closure. This authority can be exercised exclusive of the specific federal property disposal laws and regulations required for BRAC disposals. Relevant sections of the public laws cited in this EIS/EIR are provided in Appendix B.

The FISCO site is essentially flat and is developed with a variety of industrial, transportation, and maritime uses. It lies within the municipal limits of the City of Oakland in Alameda County but is within the planning jurisdiction of the Port of Oakland. FISCO is bounded by the Oakland Middle Harbor to the west, 7th Street to the north, Middle Harbor Road and the Southern Pacific West Oakland Railyard to the east, and the Union Pacific West Oakland Intermodal Railyard to the south.

PURPOSE OF AND NEED FOR ACTION

The Department of Defense (DOD) has for the past several years been reducing its basing and staffing requirements to match current force structure plans. As a result of this reduction, portions of FISCO were identified as underutilized. The Port expressed an interest in development of the underutilized FISCO property for expansion of its operations. In 1992, Congress passed special legislation (P.L. 102-484, Section 2834) giving the Navy authority to lease not more that 195 acres of FISCO to the Port. In 1993, Congress passed additional special legislation (P.L. 103-160, Section 2833) giving the Navy authority to lease any portion of the FISCO property determined to be available for lease. In 1995, the Defense Base Realignment and Closure Commission recommended closure of FISCO. The recommendation to close FISCO was subsequently approved by Congress and the President. In early 1996, Congress passed special legislation (P.L. 104-106, Section 2867) giving the Navy authority to convey to the Port all FISCO property not already subject to reversion as a requirement of law. This proposed action, the disposal of nonreversionary Navy property, is the result of that special legislation.

The federal government is responsible for environmental cleanup and disposal of the property, and the Port is responsible for preparing and implementing a reuse plan for the property. The Port's reuse plan includes the 136 acres of nonreversionary Navy property, 392 acres of reversionary Navy property, and 290 acres of non-Navy property.

The Port's reuse plan, the Vision 2000 Program, proposes developing ship, rail, and truck cargo handling facilities to meet the anticipated demand for transportation services in the San Francisco Bay Area and northern California and to serve markets in the Midwest and beyond. Together, ship, rail, and truck services make up an intermodal transportation network that allows the Port to receive cargo from ships crossing the Pacific Ocean and then to distribute this cargo across the United States via train and truck. The program

also includes developing public waterfront access and a marine habitat enhancement area in the Oakland Middle Harbor. The Vision 2000 Program will develop the property consistent with Port uses and activities, will comply with the site's port priority use designation in the Bay Conservation and Development Commission and Metropolitan Transportation Commission (BCDC/MTC) Seaport Plan, and will integrate with existing marine, rail, and truck access facilities. It will allow expansion of Port facilities, upgrading its facilities to meet competitive demands in the West Coast market.

DOCUMENT PURPOSE

This programmatic EIS/EIR has been prepared to assess the potential significant environmental impacts of FISCO property disposal and reuse, thereby fulfilling the requirements of NEPA and CEQA. The Navy is required to complete NEPA documentation to evaluate the significant environmental impacts of the disposal of nonreversionary Navy property and structures at FISCO. The Port of Oakland is required by CEQA to evaluate the significant environmental impacts of implementing its proposed Vision 2000 Program.

For purposes of the Navy's NEPA documentation, direct environmental consequences or impacts are those associated with Navy disposal and the No Action Alternative, indirect impacts are associated with Port reuse of nonreversionary Navy property, and cumulative environmental impacts are associated with the Port's reuse of reversionary Navy property and non-Navy property needed for the Vision 2000 Program. These environmental impacts are addressed in detail in this document for purposes of CEQA because the Port's Vision 2000 Program alternatives require the use of reversionary Navy property, nonreversionary Navy property, and non-Navy property. This EIS/EIR is intended to provide analysis on the potential significant environmental impacts of Navy disposal of nonreversionary Navy property at FISCO, the Vision 2000 reuse alternatives of the FISCO site, and a Navy No Action Alternative. The Navy will use the EIS in its NEPA record of decision (ROD). Following disposal, no additional NEPA review by the Navy will be required.

The Port will use this document in its consideration of future project approvals required to implement the Vision 2000 Program. Should any approvals by the Port include significant unavoidable environmental impacts, the Port would be required to adopt a statement of overriding considerations.

For this project, the Federal Highway Administration (FHWA) is a cooperating agency under NEPA, and the California Department of Transportation (Caltrans) a responsible agency under CEQA. The FHWA and Caltrans will use this EIS/EIR in their decision-making process for granting project funding through the Intermodal Surface Transportation Efficiency Act (ISTEA) of 1991. In accordance with Section 4(f) of the Department of Transportation Act of

1966, this EIS/EIR includes a separate evaluation of impacts on publicly owned park and recreation sites and historic properties that could be affected by construction or operation of the first phase of the Port's proposed joint intermodal terminal. The draft Section 4(f) evaluation is included in Appendix C of Volume II of this EIS/EIR.

Related Studies

The Base Realignment and Closure Cleanup Plan (BCP) for a closing base provides the status of ongoing environmental restoration and associated compliance programs. The Final BCP for FISCO was issued in October 1996 (US Navy 1996g). The BCP provides a thorough evaluation of the status of various cleanup programs and summarizes the compliance items that would require further evaluation and implementation. The BCP is to be updated annually or as necessary until full restoration is complete.

DOD policy requires the preparation of an environmental baseline survey (EBS) prior to selling, leasing, or transferring real property. The Final EBS for FISCO (US Navy 1996f) describes whether hazardous materials and wastes were stored, released, disposed of, or migrated onto FISCO property. Any required environmental cleanup will be done in accordance with the BCP.

Subsequent project-level environmental reviews associated with Port reuse activities also may be required under CEQA for as yet unforeseen developments.

Public Involvement Process

The EIS/EIR process is designed to involve the public in federal and local decision-making. Opportunities to comment on and participate in the process are provided during preparation of the EIS/EIR. The Port has conducted additional public meetings on the overall Vision 2000 Program. Comments from agencies and the public are solicited throughout the process to help identify the primary issues associated with the site's disposal and proposed reuse. Efforts have been made during the public notification process to include all interested regulatory agencies, Oakland area residents, and community organizations. In accordance with Executive Order 12898 on Environmental Justice, particular attention has been paid to assure participation by minority and low-income populations in the area potentially affected by disposal and reuse.

Navy Actions

No Action Alternative

The No Action Alternative would result in the Navy retaining ownership of nonreversionary Navy property under caretaker status. Under the No Action Alternative, the Navy would continue leasing the current 528-acre FISCO site to the Port of Oakland under the 50-year lease agreement authorized by special

legislation with allowances to the Port to demolish existing structures as needed. The 392 acres of reversionary Navy property would automatically revert to the Port upon operational closure in 1998. Conveyance to the Port of the 136 acres of nonreversionary Navy property would not occur under the No Action Alternative. Site contamination cleanup on FISCO would continue.

Disposal of Nonreversionary Navy Property

Navy disposal is the federal action evaluated to determine the impacts from disposal of nonreversionary Navy property out of federal ownership. Under the disposal action, 136 acres of nonreversionary Navy property will be conveyed to the Port. Predisposal actions include placing the site in caretaker status and site cleanup operations. Federal disposal is assumed to be part of each Port reuse alternative but not of the No Action Alternative.

PORT REUSE ALTERNATIVES

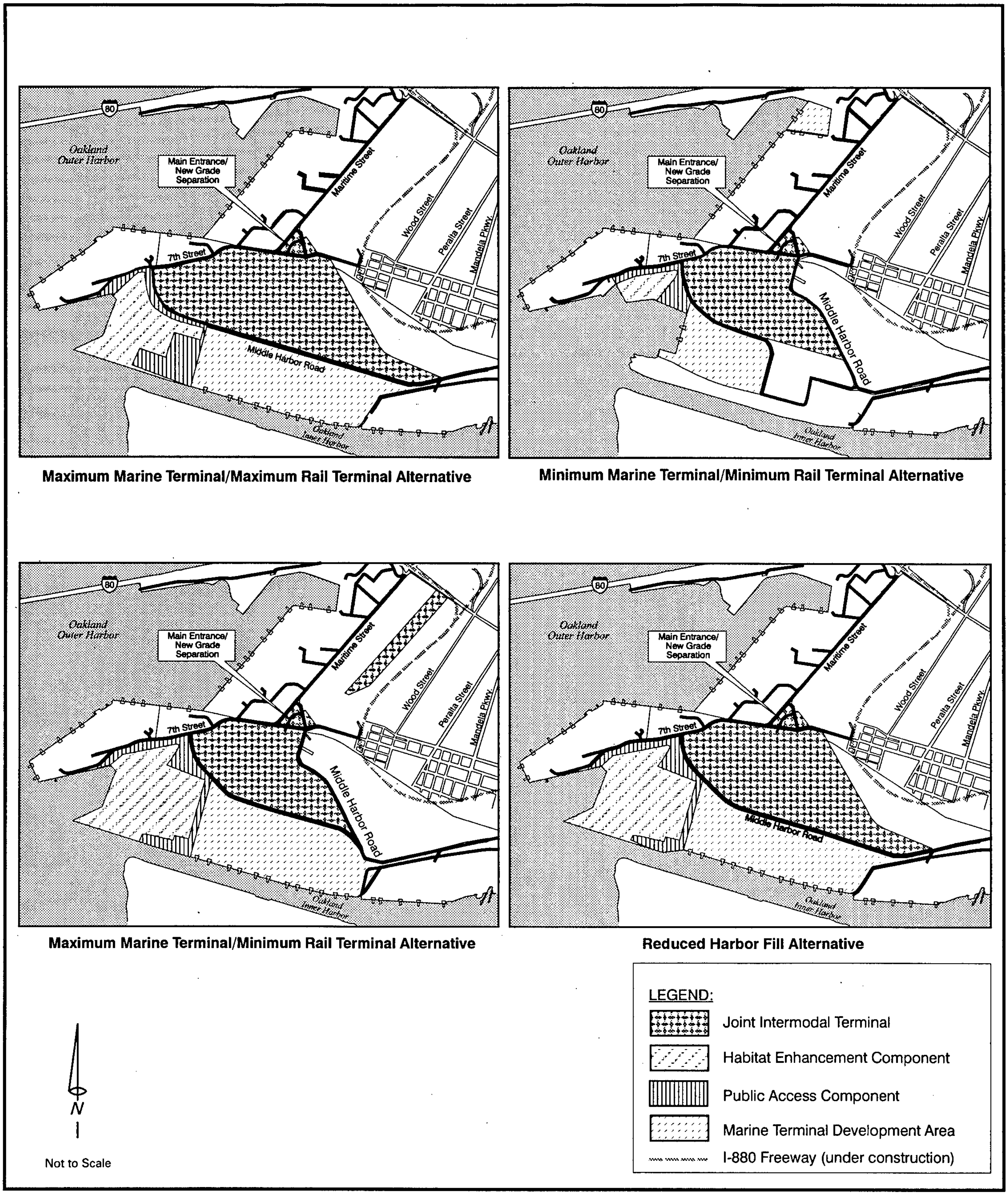
Four Port reuse alternatives are analyzed in this EIS/EIR:

- Maximum Marine Terminal/Maximum Rail Terminal Alternative;
- Minimum Marine Terminal/Minimum Rail Terminal Alternative;
- Maximum Marine Terminal/Minimum Rail Terminal Alternative; and
- Reduced Harbor Fill Alternative.

Figure ES-3 provides an overview and illustration of the major land uses proposed for each of the reuse alternatives. All four reuse alternatives include conveyance of the 136 acres of nonreversionary Navy property at FISCO and subsequent buildout and implementation of the Port's Vision 2000 Program. These alternatives were selected to provide a range of potential environmental impacts. They allow local and federal decision-makers, interested agencies, and the public to understand reuse choices and the potential environmental impacts of these choices.

Maximum Marine Terminal/Maximum Rail Terminal Alternative

The Maximum Marine Terminal/Maximum Rail Alternative proposes maximum development of a joint intermodal rail terminal to serve Union Pacific, Southern Pacific, and Burlington Northern-Santa Fe Railroads, as well as new marine terminals and ancillary facilities. The proposed rail terminal would occupy approximately 380 acres of the FISCO site. Rail storage and support tracks would require full use of existing tracks. This alternative would involve constructing five 1,200-foot berths and marine terminals along the Oakland Inner Harbor, covering approximately 260 acres, and relocating the Harbor Transportation Center and Middle Harbor Road. The Maximum Marine/Maximum Rail Alternative also includes developing approximately 29 acres of public waterfront access and 177 acres of marine habitat enhancement



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In this figure, the variation in configurations of the four reuse alternatives can be compared at a glance.

Source: Port of Oakland 1996

Comparison of Reuse Alternatives

Fleet & Industrial Supply Center Oakland
and Port of Oakland

Port of Oakland

Figure ES-3

in the Oakland Middle Harbor. For this alternative, the net total amount of solid fill would increase by approximately 42 acres and the net total amount of pile-supported fill would be reduced by about eight acres.

Minimum Marine Terminal/Minimum Rail Terminal Alternative

The Minimum Marine Terminal/Minimum Rail Terminal Alternative would develop approximately 190 acres of new rail terminal to serve the Burlington Northern-Santa Fe Railroad. This alternative assumes that the present Union Pacific intermodal operations would remain at their existing site along the Oakland Inner Harbor and that the Southern Pacific operations would remain in their current configuration and location. This alternative also would involve developing an approximately 100-acre marine terminal in the Oakland Middle Harbor, along with a channel and turning basin. In addition, new marine terminal uses would be constructed on 27 acres in the Oakland Outer Harbor on Port and Oakland Army Base property. The Navy has no disposal authority over Oakland Army Base property and any decision allowing Port use of this land would require separate Army approval. The Minimum Marine/ Minimum Rail Alternative also includes developing approximately 14 acres of public waterfront access and 71 acres of marine habitat enhancement in the northern portion of the Oakland Middle Harbor. For this alternative, the net total amount of solid fill would increase by approximately 60 acres and the net total amount of pile-supported fill would be reduced by about 23 acres.

Maximum Marine Terminal/Minimum Rail Terminal Alternative

The Maximum Marine Terminal/Minimum Rail Terminal Alternative would maximize marine terminal development along the Oakland Inner Harbor and would involve developing an approximately 190-acre new railroad intermodal terminal, similar to the Minimum Marine/Minimum Rail Alternative, to serve the Burlington Northern-Santa Fe Railroad. The Maximum Marine/Minimum Rail Alternative assumes that Union Pacific would consolidate all of its current intermodal operations into Southern Pacific's facilities. Support tracks would be located on a portion of the Oakland Army Base. The Navy has no disposal authority over the Oakland Army Base and any decision allowing Port use of this property would require separate Army approval.

The new marine terminals would occupy about 290 acres along the Oakland Inner Harbor and would include five new 1,200-foot berths. This alternative would require relocating the Harbor Transportation Center. The Maximum Marine/Minimum Rail Alternative also would include developing approximately 39 acres of public waterfront access and 200 acres of marine habitat enhancement in the Oakland Middle Harbor. For this alternative, the net total amount of solid fill would increase by approximately 18 acres and the net total amount of pile-supported fill would be reduced by about eight acres.

Reduced Harbor Fill Alternative

The Reduced Harbor Fill Alternative would develop approximately 320 acres of intermodal rail terminal on the site. Compared to the other three alternatives, the Reduced Harbor Fill Alternative requires the least net amount of solid fill in the Inner and Middle Harbors to construct on-site transportation infrastructure (a reduction of nine acres). The net total amount of pile-supported fill would be reduced by about eight acres. The new rail terminal would serve the Union Pacific, Southern Pacific, and Burlington Northern-Santa Fe Railroads. This alternative includes developing 275 acres of marine terminal space and five new berths along the Oakland Inner Harbor and relocating the Harbor Transportation Center and Middle Harbor Road. The Reduced Harbor Fill Alternative also would develop approximately 31 acres of public waterfront access and 196 acres of marine habitat enhancement in the Oakland Middle Harbor.

Environmentally Preferable/Environmentally Superior Alternative

NEPA requires that an environmentally preferable alternative be identified, and CEQA requires that an environmentally superior alternative be identified. For the purposes of NEPA, the No Action Alternative is the environmentally preferable alternative. However, the No Action Alternative would not allow the Port to achieve its objectives of increasing productivity and improving efficiency of Port-integrated intermodal services, of providing for growth of railroad intermodal capacity, and of responding to continuing trends and requirements in maritime container shipping and overland transportation. For the purposes of CEQA, the environmentally superior reuse alternative is the Reduced Harbor Fill Alternative.

The Reduced Harbor Fill Alternative is superior overall with respect to land use and visual resources. Local public service impacts are equivalently superior for both the Maximum Marine/Maximum Rail and Reduced Harbor Fill Alternatives. Impacts to biological resources are equivalently superior for both the Maximum Marine/Minimum Rail and Reduced Harbor Fill Alternatives. All other impact topics are similar for all of the reuse alternatives. The Reduced Harbor Fill Alternative would create a substantial amount of acreage available for public waterfront access, recreation and open space development, and habitat and historic resource improvements in the Oakland Middle Harbor, while maximizing marine and rail operating capacity that does not require off-site development of Oakland Army Base property. Therefore, the Reduced Harbor Fill Alternative is considered the environmentally superior reuse alternative.

AFFECTED ENVIRONMENT

The EIS/EIR provides a description of the existing environmental and socioeconomic conditions at FISCO and of surrounding properties. The setting discussion for each resource area identifies the region of influence (ROI)

applicable to the specific resource area. An ROI is a geographic area in which impacts for a particular resource would likely occur. Existing conditions are described for the following resource categories: land use, socioeconomics, public services, cultural resources, visual resources, biological resources, water resources, geology and soils, traffic and circulation, air quality, noise, utilities, and hazardous materials and waste.

ENVIRONMENTAL CONSEQUENCES

The EIS/EIR evaluates the potential environmental consequences associated with disposal of nonreversionary Navy property and with reuse of FISCO and other non-Navy property. The environmental impacts are compared against the NEPA and CEQA significance thresholds of environmental impacts to each of the resource categories: land use, socioeconomics, public services, cultural resources, visual resources, biological resources, water resources, geology and soils, traffic and circulation, air quality, noise, utilities, and hazardous materials and waste. For purposes of the Navy NEPA analysis, direct environmental consequences or impacts are associated those associated with Navy disposal and the No Action Alternative, indirect impacts are associated with Port reuse of nonreversionary Navy property, and cumulative environmental impacts are associated with the Port's reuse of reversionary Navy property and non-Navy property needed for the Vision 2000 Program. The Navy has no control over the Port's use of reversionary Navy property after reversion to the Port, nor does the Navy have control over the Port's proposed use of non-Navy property.

The environmental impacts of the No Action Alternative, the Navy property disposal action, the Port of Oakland Vision 2000 reuse alternatives, and cumulative environmental impacts are summarized in Table ES-1 and the following paragraphs. The environmental impacts are projected to the year 2010, the year anticipated for full buildout of the Vision 2000 reuse alternatives. Full buildout of each reuse alternative is assumed in the determination of impacts, and impacts are specified as resulting from disposal or reuse. Table ES-1 indicates the most adverse type of impact (significant and not mitigable, significant and mitigable, potentially significant and mitigable under CEQA, not significant, and none) for each issue area and alternative.

The Navy No Action alternative would have significant and mitigable environmental impacts on cultural resources and air quality. Both these environmental impacts are associated with the continuing actions of the Port of Oakland under the existing 50-year lease of FISCO property. Implementation of the No Action Alternative would contribute to cumulative significant and unmitigable environmental impacts to traffic and circulation, air quality, and noise associated with regional growth and increasing local cargo requirements. The No Action Alternative would contribute to cumulative significant and mitigable environmental impacts to cultural resources (demolition of historic

Table ES-1
Summary of Impacts and Significance

Impact Issues	Navy Actions: No Action Alternative	Navy Actions: Navy Disposal	Vision 2000 Reuse Alternatives: Maximum Marine/ Maximum Rail Alternative	Vision 2000 Reuse Alternatives: Minimum Marine/ Minimum Rail Alternative	Vision 2000 Reuse Alternatives: Maximum Marine/ Minimum Rail Alternative	Vision 2000 Reuse Alternatives: Reduced Harbor Fill Alternative
Land use	⦶	○	◑	⦶	◑	◑
Socioeconomics	○	○	○	○	○	○
Public services	⦶	○	◑	⦶	⦶	◑
Cultural resources	◑	◑	◑	◑	◑	◑
Visual resources	⦶	○	◑	⦶	◑	◑
Biological resources	⦶	○	◑	◑*	◑	◑
Water resources	⦶	○	◑*	◑*	◑*	◑*
Geology and soils	⦶	○	◑*	◑*	◑*	◑*
Traffic and circulation	○	○	◑	◑	◑	◑
Air quality	◑	○	●	●	●	●
Noise	⦶	○	⦶	⦶	⦶	⦶
Utilities	⦶	○	⦶	⦶	⦶	⦶
Hazardous materials and waste	○	○	◑*	◑*	◑*	◑*
Growth-inducing impacts	⦶	○	⦶	⦶	⦶	⦶
Cumulative land use	○	○	○	○	○	○
Cumulative socioeconomics	⦶	○	⦶	⦶	⦶	⦶
Cumulative public services	⦶	○	⦶	⦶	⦶	⦶
Cumulative cultural resources	◑	○	◑	◑	◑	◑
Cumulative visual resources	⦶	○	⦶	⦶	⦶	⦶
Cumulative biological resources	⦶	○	⦶	⦶	⦶	⦶
Cumulative water resources	◑	○	◑	◑	◑	◑
Cumulative geology and soils	⦶	○	⦶	⦶	⦶	⦶
Cumulative traffic and circulation	●	○	●	●	●	●
Cumulative air quality	●	○	●	●	●	●
Cumulative noise	●	○	●	●	●	●
Cumulative utilities	◑	○	◑	◑	◑	◑
Cumulative hazardous materials and waste	○	○	◑*	◑*	◑*	◑*
Environmental justice	○	○	○	○	○	○

LEGEND:

Level of Impact

● - Significant and not mitigable
◑ - Significant and mitigable
⦶ - Not significant
○ - None
* - Potential significant impact under CEQA. Potential significant and mitigable impacts are identified in situations where there is not enough information or design detail available at this stage of the project to make a definitive determination as to the relative significance of an impact or future studies are planned that will determine the relative significance of the impact.

structures and/or districts associated with the 50-year lease) and utilities (landfill capacity associated with the demolition debris of buildings under the 50-year lease), and could continue to contribute to significant and mitigable cumulative environmental impacts to water resources (contribution to stormwater contaminants in the Central Bay associated with the 50-year lease).

The Navy property disposal action would have a significant and mitigable environmental impact on cultural resources because the Navy disposal action would not restrict the demolition of historic structures and/or district in the future. No other environmental impact would result from the Navy disposal action as it is simply a transfer of title.

All four Port of Oakland Vision 2000 reuse alternatives would have a significant and unmitigable environmental impact on air quality because they would result in air emissions which exceed the Bay Area Air Quality Management District significance thresholds. The EIS/EIR identifies no mitigation which would reduce these air emissions below the significance threshold. All other significant environmental impacts of the Vision 2000 reuse alternatives could be mitigated to a less than significant level except for cumulative environmental impacts.

Implementation of any of the four Vision 2000 reuse alternatives would contribute to cumulative significant and unmitigable environmental impacts to traffic and circulation, air quality, and noise associated with regional growth and increasing local cargo requirements. The four Vision 2000 reuse alternatives would contribute to cumulative significant and mitigable environmental impacts to cultural resources (demolition of historic structures and/or districts), water quality (added dredging and stormwater discharges), utilities (landfill capacity associated with the demolition debris), and hazardous materials and wastes (potential additional environmental cleanup requirements on non-Navy property).

Some land use, socioeconomic, visual, and biological impacts associated with the Vision 2000 Program would be beneficial. This is also to be expected, given the types of activity proposed, namely, a joint intermodal terminal (an employment generator), and the proposed Oakland Middle Harbor shoreline public access and habitat enhancement component. Without implementing the Vision 2000 Program, there would be continued truck traffic between the Santa Fe Railroad's intermodal classification yard in Richmond and the Port via I-80.

Land Use

Disposal would not impact land use because it would not result in any changes to the physical environment (it is a transfer of title). No significant land use impact would occur under the No Action Alternative because portions of FISCO are being leased to and occupied by the Port, and any future land uses on this site would be similar and compatible with existing Port land uses. Any

future construction and demolition activities undertaken as part of the No Action Alternative on FISCO would produce temporary but not significant land use impacts because FISCO is surrounded by other industrial and heavy-commercial uses.

No significant land use impacts would result from implementation of the Minimum Marine/Minimum Rail Alternative because no disruption of existing surrounding land uses such as the one-acre Middle Harbor Park would occur. However, the Minimum Marine/Minimum Rail Alternative would create the least amount of public access and habitat improvements in the Oakland Middle Harbor. Therefore, the benefit gained by preserving this small amount of shoreline open space along the Oakland Inner Harbor would be not significant compared to the unrealized recreational, waterfront access, and open space benefits that could be derived by one of the other three reuse alternatives.

Significant and mitigable land use impacts would result from implementing the Maximum Marine/Maximum Rail, Maximum Marine/Minimum Rail, and Reduced Harbor Fill Alternatives because they would disrupt surrounding land use configurations by removing Middle Harbor Park. However, the public access components under consideration for these three reuse alternatives would provide between 29 and 39 acres of shoreline access to the Middle Harbor, a substantial gain over current conditions.

Socioeconomics

The No Action Alternative would preclude the realization of substantial socioeconomic gains predicted under the reuse alternatives in terms of new jobs and increased incomes. Disposal would have no impact on local or regional employment and income or population, housing, or schools. Each of the four reuse alternatives would beneficially impact employment and income and would not impact population, housing, or schools.

Compared to the No Action Alternative, the net gain in total employment generated as a result of reuse would range from about 5,300 new direct and induced jobs for the Minimum Marine/Minimum Rail Alternative to approximately 11,000 new direct and induced jobs for the Maximum Marine/Minimum Rail Alternative. The Maximum Marine/Maximum Rail Alternative would result in an estimated 9,500 jobs, and the Reduced Harbor Fill Alternative would lead to about 10,000 jobs. This increase in direct and induced jobs throughout the Port of Oakland represents beneficial impacts to both the local and regional economy.

Public Services

No significant impacts to public services are expected under the No Action Alternative because the Navy is expected to maintain current levels of police and fire services at least until closure of FISCO in September of 1998 or until

lease or reversion of the property to the Port, unless other arrangements are made between the Port and Navy. Once the property is leased or reverts to the Port, the Port will be responsible for entering into an agreement with the City of Oakland to provide adequate services to FISCO.

Disposal generally would have no impact on public services provided at FISCO because disposal would occur to a jurisdiction capable of providing adequate services. Implementing any of the four Port reuse alternatives would increase the demand for City of Oakland police services and could increase the demand for fire services, but these are not considered significant impacts.

The Port and City of Oakland will enter into negotiations to assess the demand for increased fire protection services as part of project-specific environmental review prior to developing the Vision 2000 Program. The Port and Oakland also will develop an agreement, if necessary, to provide appropriate resources to meet this demand. The Oakland Police Department has determined that any increased demand for protection services could be met by the current level of service and would not require additional personnel or resources.

Implementing the Maximum Marine/Maximum Rail and Reduced Harbor Fill Alternatives would have a significant but mitigable impact on local medical services by removing a clinic that provides medical services to the West Oakland Community. However, this clinic is located in a heavily industrial area surrounded by heavy truck traffic and requiring an at-grade rail crossing to reach it. Implementing mitigation recommended under both the Maximum Marine/Maximum Rail and Reduced Harbor Fill Alternatives (i.e., relocating this facility to an alternative site nearby) would relocate this clinic to a safer and more accessible location within the West Oakland community.

Impacts of the No Action, disposal, and reuse alternatives on Oakland emergency ambulance services would not be significant because current service levels could adequately serve the development proposed for the site. Although the Spectrum Medical Care clinic would not be effected causally by the No Action Alternative, the clinic is a tenant of the Southern Pacific Railroad and is operated under a month-to-month lease; therefore, its relocation could be required at any time.

Cultural Resources

Implementing the No Action Alternative, Navy disposal, or any of the four reuse alternatives would result in impacts to contributing buildings that are part of the Naval Supply Center, Oakland Historic District, which is eligible for inclusion in the National Register of Historic Places (NRHP). Establishing appropriate mitigation for this impact requires revising the previous memorandum of agreement (MOA) with the State Historic Preservation Officer (SHPO) and the Advisory Council on Historic Preservation (ACHP) for leasing

190 of 220 acres of FISCO to cover all of FISCO and the eventual disposal of the nonreversionary Navy property to the Port. The Port, Navy, and Oakland Landmarks Preservation Advisory Board have revised the mitigation measures that take into account the larger areas of impacts associated with Navy disposal of all of FISCO. Implementing the stipulations in the amended MOA would reduce this impact to a level that is not significant.

The Maximum Marine/Maximum Rail Alternative would have significant and mitigable impacts on four NRHP-eligible buildings in the Southern Pacific West Oakland Shops Historic District. Options for mitigating adverse impacts to these buildings include marketing them for relocation and use off-site, or, alternatively, recording the buildings to the standards of the Historic American Building Survey/Historic American Engineering Record (HABS/HAER) prior to demolition. Specific mitigations will be addressed as part of future project-level environmental documentation.

Only the Maximum Marine/Minimum Rail Alternative would require demolishing some contributing buildings within the Oakland Army Base Historic District, a significant but mitigable impact. The Navy has no disposal authority over the Oakland Army Base and any decision allowing Port use of this property would require separate Army approval. Options for mitigating this adverse effect include recording the yards and affected buildings to the Historic American Building Survey standards prior to demolition, phasing demolition so that buildings would be removed only as needed, and donating rails or other surplus material to a nonprofit railroad museum. The specific mitigations for these impacts would be specified, if required, in a MOA among ACHP, SHPO, the Army, and the Port, as part of subsequent environment documentation.

Implementing either the Maximum Marine/Maximum Rail, Maximum Marine/Minimum Rail, or Reduced Harbor Fill Alternatives would demolish the north training wall, a NRHP-eligible property extending along the northern edge of the Oakland Inner Harbor. If the demolition is total, the only available mitigation measure is recording the features to the standards of the Historic American Engineering Record prior to demolition. If some visible elements of the north training wall remained after project completion, those remnant elements could be restored or interpreted as part of a program to mitigate adverse effects on the remainder of the wall.

Visual Resources

Removing cranes and vessels from the Oakland Middle Harbor as part of the No Action Alternative would reduce visual variety in views from San Francisco Bay and Port View Park; however, this would not be considered a significant impact, given the surrounding industrial development at Port terminals. Navy

disposal would have no impact on visual resources because it would not involve any changes to the physical environment.

The Maximum Marine/Maximum Rail and Maximum Marine/Minimum Rail Alternatives could have a potential significant and mitigable impact on off-site views of the project site from existing public access points along the Alameda shore of the Oakland Inner Harbor. The proposed marine terminals could add additional visual contrast and block scenic views of key features of San Francisco Bay, such as the eastern span of the Bay Bridge, Yerba Buena Island, and Mt. Tamalpais. This impact can be mitigated by setting back the marine terminals from the northern shore of the Oakland Inner Harbor, as proposed under the Reduced Harbor Fill Alternative.

The Maximum Marine/Maximum Rail, Maximum Marine/Minimum Rail, and Reduced Harbor Fill Alternatives would have significant and mitigable visual effects, due to marine terminal construction along the Oakland Inner Harbor. Implementing this project component would remove existing visual access at Middle Harbor Park.

All four reuse alternatives could have beneficial effects by enhancing the Oakland Middle Harbor for increased public access and viewing opportunities; these efforts, part of the Middle Harbor public access components, would mitigate for potential view blockage from off-site locations, such as San Francisco Bay and the Oakland Inner Harbor, and loss of visual access at Middle Harbor Park under the Maximum Marine/Maximum Rail, Maximum Marine/Minimum Rail, and Reduced Harbor Fill Alternatives.

Biological Resources

Disposal would have no impact on biological resources. The No Action Alternative would not result in any significant impacts to biological resources. Under the reuse alternatives, the temporary loss during construction of foraging habitat in the Oakland Inner Harbor for the California least tern under the Maximum Marine/Maximum Rail, Maximum Marine/Minimum Rail, and Reduced Harbor Fill Alternatives would be a potentially significant but mitigable impact. The Port shall undertake informal discussions with the USFWS and the US Army Corps of Engineers to assure that marine terminal construction and dredging does not pose significant adverse impacts on least tern foraging. To prepare for this consultation, the Port may conduct a least tern survey along the Inner Harbor Channel during their breeding season or turbidity studies to determine the effects of construction disturbance on tern feeding behavior. If, as a result of these studies, it is determined that the project could have a significant impact, specific mitigation measures will be implemented.

Implementation of the Maximum Marine/Maximum Rail, Maximum Marine/Minimum Rail, and Reduced Harbor Fill Alternatives could remove potential burrowing owl habitat at Middle Harbor Park, a significant and mitigable impact. The Port shall conduct a survey for burrowing owls, a California Species of Special Concern, in accordance with US Fish and Wildlife Service and California Fish and Game guidelines prior to construction. If individuals or colonies are identified, the area would be avoided, to the extent feasible and practical. If avoidance is not possible, a mitigation program consisting of relocating birds to a suitable location, such as the proposed Middle Harbor public access area, would be developed.

The reuse alternatives also could have a significant and mitigable impact caused by the removal of an eelgrass bed in the Oakland Inner Harbor (under the Maximum Marine/Maximum Rail, Maximum Marine/Minimum Rail, and Reduced Harbor Fill Alternatives) and potential sedimentation of an eelgrass bed in the Middle Harbor (all four alternatives). Implementing any of the four marine habitat enhancement area plans would mitigate for loss of this habitat and would create a beneficial environment for enhanced marine and biological resources in the Middle Harbor.

Water Resources

Expansion of the Harbor Transportation Center on FISCO under the No Action Alternative could result in increases in contaminants in stormwater runoff from that area but would be controlled by the Port's stormwater management program, which includes compliance with its best management practices (BMPs). This is considered a not significant impact. Navy disposal is not an environmentally disruptive action and would result in no impacts to water resources.

Similar potentially significant and mitigable impacts to water resources would occur under all four reuse alternatives. These impacts include pollutants in stormwater runoff, and increased levels of suspended solids and contaminants, as well as reduced oxygen levels in the water column, from dredging contaminated material and filling activities in the Middle Harbor. A well-designed facility incorporating BMPs, including those already developed by the Port for vehicle maintenance, could reduce the project's contribution of stormwater contamination to a not significant level. Furthermore, the Port is considering several options available for the disposal or reuse of any contaminated material encountered during project dredging. The potential and extent of these impacts can only be determined after project-specific sediment testing has been conducted, a disposal or reuse site has been selected, and the dredging methods have been determined. Specific impacts will be addressed through subsequent project-specific environmental documentation.

Geology and Soils

Under the No Action Alternative, FISCO would be managed by the Port of Oakland and there would be no significant geology and soils impacts. No geologic impacts have been identified for Navy disposal because it is not an environmentally disruptive action.

Similar potentially significant and mitigable impacts to geology and soils could result from implementing any of the four reuse alternatives. These impacts would include damage to structures and utilities from ground shaking and liquefaction, settlement, and differential settlement. The Port will perform geotechnical studies of the project site, including an evaluation of the liquefaction potential of the existing fills. Recommendations from these studies will be incorporated into final design plans and adopted as mitigation as part of subsequent project-level environmental documentation.

Traffic and Circulation

A minimal number of trips would be generated by the No Action Alternative, and these trips would not affect the local or regional transportation system. There also would be no increased vehicular delay at railroad highway crossings. Navy disposal is not an environmentally disruptive action and would result in no traffic and circulation impacts.

All reuse alternatives would add traffic to area streets and freeways. Eighteen nearby intersections were analyzed for their potential to increase traffic delays (in seconds). Traffic impacts to 17 of these 18 intersections under each reuse alternative would not be significant. However, implementation of any of the four reuse alternatives would result in significant and mitigable delays at the intersection of Adeline Street and 3rd Street. Impacts at this intersection for all four reuse alternatives could be mitigated by restriping the east and westbound 3rd Street approaches. Impacts to freeways as a result of any of the four reuse alternatives are expected to be not significant.

Air Quality

The No Action Alternative could result in a limited amount of construction and demolition activity on FISCO associated with on-site Port activities. Emissions associated with construction and demolition activities would be a significant and mitigable impact. Navy disposal of FISCO would not result in any air quality impacts because it is not an environmentally disruptive action.

Automobile, truck, rail, and ship traffic-related ozone precursor emissions (i.e., reactive organic compounds [ROG], nitrogen oxides [NOx]), PM_{10} precursor emissions (i.e., sulfur oxides [SOx]), and direct PM_{10} emissions for any of the four reuse alternatives would result in significant and unmitigable air quality impacts. However, as a result of cumulative growth in the Bay Area, ozone precursor, PM_{10} precursor, and direct PM_{10} emissions would be significant and

unmitigable by 2010 without implementing the Vision 2000 Program. No feasible mitigation measures have been identified for this impact. Emission calculations already assume a 15 percent trip rate reduction for employee home/work trips and a ten percent trip rate reduction for work/other trips. The levels of carbon monoxide, asbestos dust, and lead dust generated as air pollutants would not be significant.

Noise

The No Action Alternative would not result in any significant noise impacts. Navy disposal would result in no noise impacts because it is not an environmentally disruptive action. Not significant noise impacts would be the same for all four reuse alternatives and would include traffic-generated noise, trains traveling north and south of Oakland, and railyard and marine terminal operations.

Utilities

The No Action Alternative would result in not significant impacts to utilities serving FISCO. Navy disposal would have no impact on utilities because it is not an environmentally disruptive action. No significant impacts from any of the four reuse alternatives are expected to landfill capacity, water distribution, sanitary sewer, stormwater drainage, electrical, natural gas, or telephone systems utilities serving the FISCO site. Construction and demolition debris associated with reuse would not affect the Alameda County landfill over the short-term. Its long-term effects to landfill capacity are discussed under Cumulative Impacts, below.

Hazardous Material and Waste

Under the No Action Alternative, the quantity of hazardous materials used, stored, and disposed of on FISCO would be minimal, much less than under historic levels of Navy operations, and would have no impact. Similarly, Navy disposal would have no impact on hazardous materials and waste because it is not an environmentally disruptive action.

The Navy and the Army are required to clean up all hazardous waste prior to disposal of their sites. The BCP summarizes the status of the environmental restoration and compliance programs and presents a strategy for carrying out response actions necessary to protect human health and the environment. Impacts associated with hazardous materials and hazardous wastes, therefore, reflect the handling and disposing of such materials under the reuse actions. Small quantities of these materials are expected to be generated, handled, or disposed of by Port operations.

The hazardous waste issues for Union Pacific, Southern Pacific, and other Port properties were unclear at the time this report was prepared. In many cases, an inventory of the hazardous materials and hazardous wastes used on these

properties and their respective locations of use has not been conducted. At this time, the environmental impact on these properties from current and historic use is unknown and is considered potentially significant for all four reuse alternatives. The Port will be responsible for conducting additional environmental investigations on these non-DOD properties as part of project-level environmental documentation to assess the potential concerns and impacts on the development of Union Pacific, Southern Pacific, and other Port properties as part of the Vision 2000 Program. There is a moderate likelihood that surface and subsurface contamination could impact construction activities on these portions of the project site. Developing these areas also could be delayed or limited by the extent and type of contamination encountered on the properties and by future remedial activities.

Other NEPA/CEQA Considerations

Certain additional topics are required to be included in an EIS/EIR by federal or state statutes and guidelines. These include identifying any unavoidable adverse impacts to the environment, discussing the relationship between local short-term uses of the environment and long-term productivity, identifying any irreversible and irretrievable commitment of resources, analyzing cumulative impacts, and analyzing growth-inducing impacts. Cumulative impacts result from the incremental impact of an action (or project) when added to other past, present, and reasonably foreseeable future actions (or projects). Growth-inducing impacts are the ways in which the proposed action could foster economic or population growth.

Unavoidable Adverse Impacts of the Proposed Action

The one significant unavoidable impact associated with reuse of FISCO is automobile, truck, rail, and ship traffic-related ozone precursor, PM_{10} precursor, and direct PM_{10} emissions above the Bay Area Air Quality Management District significance threshold of 15 tons per year. Unavoidable significant impacts related to freeway traffic, air quality, and noise would occur under the cumulative No Action scenario, as well as under the four cumulative with project scenarios. All other potentially significant impacts of the proposed action would be mitigable to a not significant level by implementing mitigation measures recommended in this document.

Short-term Uses and Long-term Productivity

The environmental productivity of FISCO historically has been related to its operation as a naval supply depot and the maintenance of existing environmental conditions. Proposed reuse would achieve numerous short- and long-term benefits, including increased public access to open space and accompanying recreational opportunities along the Oakland Middle Harbor that were previously restricted to Navy use. Long-term benefits also include providing jobs. Increased shipping activities at the Port would result in local and regional employment opportunities and growth in trade with Pacific Rim nations and across the United States. The significant unmitigable

environmental impacts associated with reuse are decreased the long-term productivity of the Bay Area region's air quality and rail traffic flow.

Irreversible and Irretrievable Commitment of Resources

Implementing the Vision 2000 Program would require commitments of both renewable and nonrenewable energy and material resources for demolition and commitments for constructing the structures and improving the infrastructure required for its implementation. These developments would represent a large commitment of financial resources but would not represent an irreversible commitment of the Vision 2000 properties to the proposed uses.

Growth-inducing Impacts

Disposing of FISCO and subsequently implementing the Vision 2000 Program would result in new economic growth in the region. Implementing any of the reuse alternatives would create a substantial number of jobs. Demands for additional employees resulting from reuse activities are expected to be met by the local population. The Port will continue to promote and implement local hiring. The increased economic activity is expected to contribute to regional economic growth and would affect factors such as housing conditions and land development. Future growth and development both on-site and off-site would be subject to subsequent development and permit applications and their required environmental review and disclosures.

Cumulative Impacts

Reuse of FISCO, along with reuse of the Oakland Army Base, NAS Alameda/FISC Annex, and other cumulative development in the surrounding region, could result in cumulative impacts to cultural resources through demolition of historic buildings and structures, such as in the Oakland Army Base Historic District and the NAS Alameda Historic District. Physical disturbances, such as demolition and adaptation of cultural resources in the area, would result in an irreversible loss of finite resources. Loss of historic resources through demolition and reuse on FISCO, other military bases proposed for disposal and reuse, and nonmilitary development projects could result in a cumulatively significant impact. Mitigation for this impact could include MOAs with SHPO and the ACHP for restoring, preserving, and recording the affected resources.

The No Action Alternative could result in increased contaminants in stormwater runoff from FISCO. This, in turn, could contribute to cumulative loadings of stormwater contaminants in Central Bay receiving waters. This is a cumulative significant and mitigable impact.

Developing the selected Port reuse alternative, in combination with other local proposed or reasonably foreseeable development, could also add to significant cumulative effects to the quality of local receiving waters. For example, the Port's 42-foot dredging project in the Oakland Inner Harbor has the potential

to adversely affect bay water quality due to the potential temporary increase in turbidity and resuspension of sediment contaminants. In addition, disposal and reuse of NAS Alameda/FISC Annex across the Oakland Inner Harbor in Alameda, in combination with the selected Port reuse alternative, would cumulatively contribute to the discharge of stormwater contaminants and potential spills of contaminants that could adversely affect water quality in the Oakland Inner Harbor and the bay in general. Project-specific mitigation implementing the Port and City of Alameda's stormwater management program could reduce this cumulatively significant impact to a not significant level.

The analysis of cumulative traffic and circulation impacts was based on the Alameda County Congestion Management Agency (CMA) transportation model, which included land use forecasts developed by the Association of Bay Area Governments (ABAG) for 2010. The results of this analysis identified significant unmitigable impacts related to peak hour traffic congestion on freeways and vehicular delay at railroad/highway crossings. Levels of service on the following Bay Area freeway segments would be significant and unmitigable by 2010 without implementing the Vision 2000 Program:

- I-880 north of I-238 (northbound in the AM and PM peak, southbound in the PM peak);
- I-880 south of I-238 (northbound and southbound in the AM and PM peak);
- I-238 (eastbound in the AM peak);
- I-580 east of I-980/State Route 24 (westbound in the AM peak);
- I-80 at the Bay Bridge (eastbound in the PM peak); and
- I-580 west of I-238 (eastbound in the PM peak).

Cumulative traffic impacts could also result from development plans that exceed the ABAG projections and that have not been included in the CMA transportation model. Military base reuse projects in the Bay Area being planned likely would exceed the ABAG land use forecasts for 2010. The potential traffic impacts caused by these projects (e.g., NAS Alameda/FISC Annex), in combination with the selected Port reuse alternative, would include impacts to Bay Area freeways and intersections and would add traffic to the freeways, thereby exacerbating the impacts of the Port's Vision 2000 project. It is not feasible to mitigate traffic impacts to freeways to not significant levels. Increasing freeway capacity by adding lanes would not be feasible because of the high cost, the negative impacts to air quality, and other factors.

Reuse of FISCO plus other major developments in the region would result in a cumulative contribution to traffic-related ozone and PM_{10} precursor emissions, and direct PM_{10} emissions in the Bay Area. No feasible mitigation measures have been identified for this impact. Cumulative air quality issues in the San

Francisco Bay Area are addressed through regional air quality plans that are expected to achieve and maintain the federal ozone, carbon monoxide, and inhalable particulate matter (PM_{10}) standards in the Bay Area.

The addition of Amtrak trains caused by regional growth would cumulatively add to rail traffic on the Southern Pacific rail line into the Central Valley, thereby potentially causing noise levels to exceed significance thresholds. This would be considered a significant and unmitigable cumulative noise impact. Although it is technically possible to construct noise barriers that will significantly reduce rail noise impacts on adjacent land uses, it is seldom economically feasible to do so. Cost, aesthetic, and other considerations often make such noise barriers infeasible or undesirable.

Cumulative demands on utilities (solid waste disposal/landfill capacity, including reuse) could be significant and mitigable if reducing waste at its sources and recycling goals are not met on a regional basis. There is a current countywide landfill capacity shortfall of about eight million tons to meet projected needs through 2010 (Alameda County Waste Management Authority 1995). In anticipation of this large quantity of construction and demolition materials, the California Integrated Waste Management Board (CIWMB) has been exploring ways to assist localities in diverting these wastes from landfills through reuse, recycling, and other strategies. An informal CIWMB base closure team has been organized with staff and others to examine the issues and to identify means to assist counties involved in base reuse.

The cleanup of hazardous materials and waste between closure of FISCO and buildout of the Vision 2000 Program and cumulative base conversion and reuse projects through the Bay Area generally would have a beneficial impact on the regional environment. All known contaminated areas on bases proposed for disposal—Oakland Army Base and NAS Alameda/FISC Annex, and Treasure Island/Yerba Buena Island—would be remediated by the Navy or Army, at least to the level necessary to protect human health and the environment. However, cumulative development of nonmilitary property could result in a potentially significant cumulative impact to human health and the environment, given the unknown nature and extent of hazardous materials and waste historically used in the vicinity of the project area. Mitigation for this significant cumulative impact would include historic site assessments and subsurface investigations, as necessary, to be undertaken on a project-by-project basis.

Environmental Justice

The Executive Order on Federal Actions to Address Environmental Justice in Minority and Low-Income Populations requires that "Each Federal agency shall analyze the environmental effects, including human health, economic and social effects, of Federal actions including effects on minority communities and low-income communities, when such analysis is required by NEPA. Mitigation

measures outlined or analyzed in an environmental assessment, environmental impact statement, or record of decision, whenever feasible, should address significant and adverse environmental effects of proposed Federal actions on minority communities and low-income communities." The No Action Alternative, Navy disposal, and four Port reuse alternatives would not have disproportionate adverse affects on low-income and minority populations in West Oakland. Furthermore, the Port's reuse alternatives would have a positive long-term overall economic effect to the local community, as well as to the city and region as a whole.

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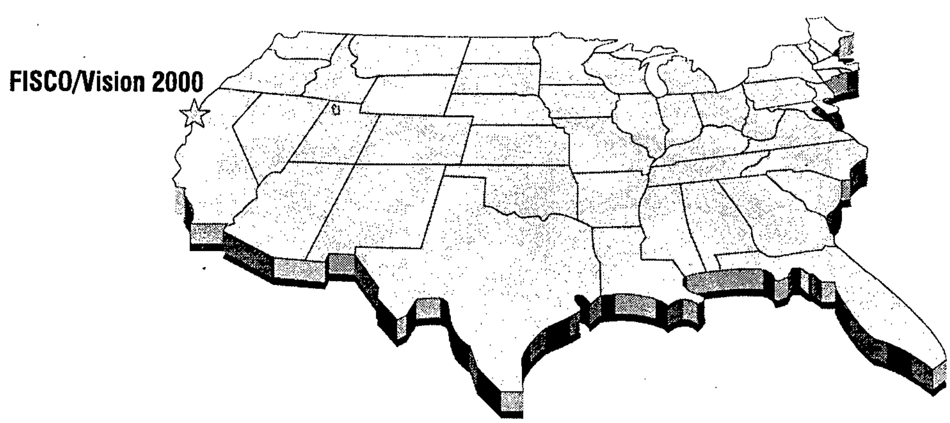


1.0 PURPOSE OF AND NEED FOR ACTION

CHAPTER 1
PURPOSE OF AND NEED FOR ACTION

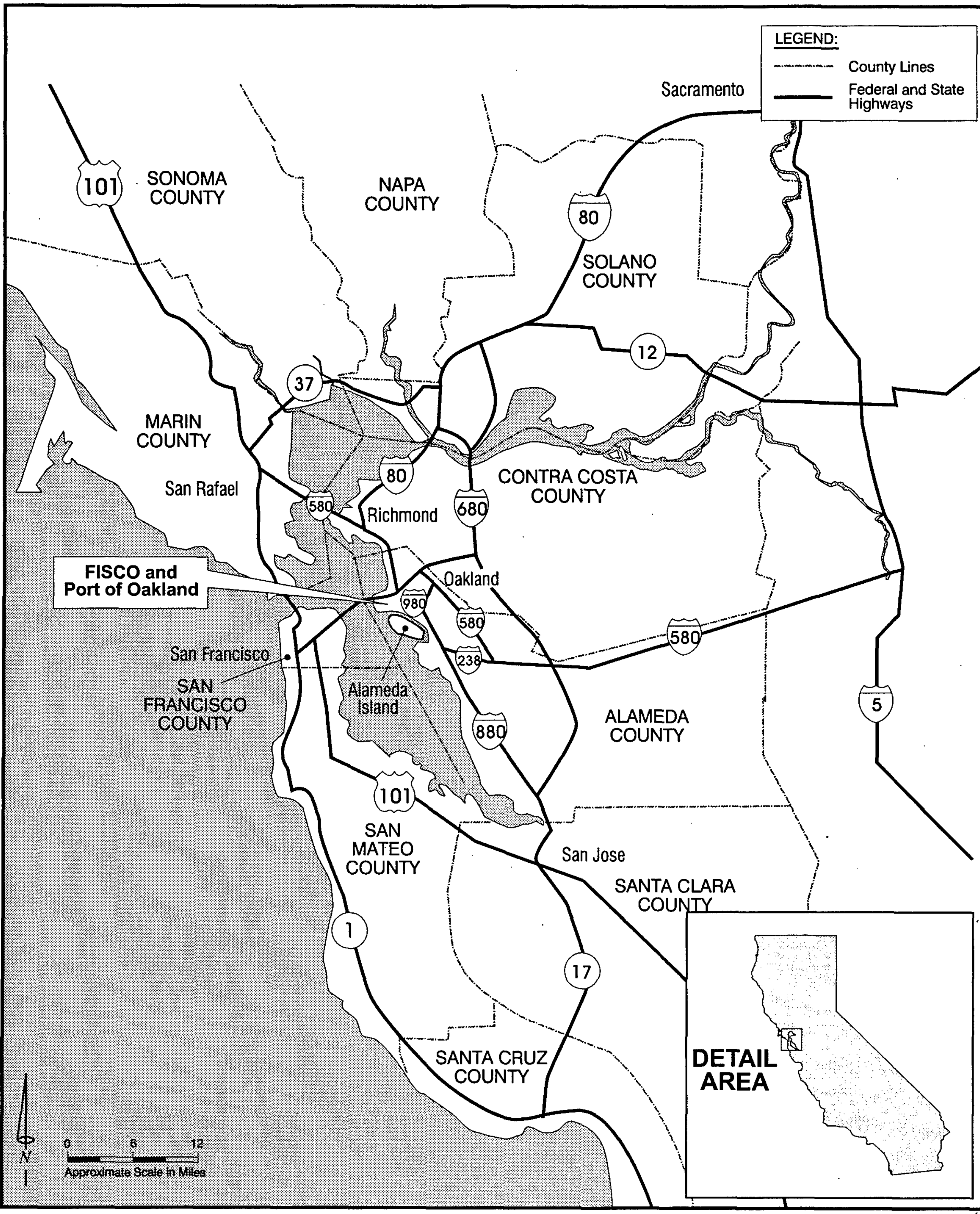
This environmental impact statement/environmental impact report (EIS/EIR) evaluates potential impacts to the environment that may result from the Navy disposal and Port of Oakland (Port) reuse of the Fleet and Industrial Supply Center, Oakland (FISCO) in Oakland, California. The Defense Base Closure and Realignment Act of 1990, as implemented by the base closure process of 1995, directed the Navy to close FISCO (P.L. 101-510, Section 2687). This document has been prepared in accordance with the National Environmental Policy Act of 1969 (NEPA); the Council on Environmental Quality (CEQ) regulations on implementing NEPA; Navy guidelines (OPNAVINST 5090.1B); and current California Environmental Quality Act (CEQA) statutes (California Public Resources Code section 21000 et seq.) and implementing guidelines (California Code of Regulations section 15000 et seq.). The federal action evaluated in this EIS/EIR is the disposal of nonreversionary Navy property and structures, while the local project evaluated is the proposed reuse of FISCO pursuant to the Port's Vision 2000 Program. The location of FISCO and the Vision 2000 Program project site is shown on Figure 1-1.

1.1 LOCATION AND HISTORY OF FLEET AND INDUSTRIAL SUPPLY CENTER, OAKLAND

The FISCO site covers 528 acres and has supported general supply operations, waterfront operations, and administration activities.

1.1.1 Location

FISCO is located in West Oakland, approximately two miles west of the Oakland central business district, on the eastern shoreline of San Francisco Bay. It lies within the municipal limits of the City of Oakland in Alameda County but is within the planning jurisdiction of the Port of Oakland, a department within the city. FISCO is bounded by the Oakland Middle Harbor to the west, 7th Street to the north, Middle Harbor Road and the Southern Pacific West Oakland Railyard to the east, and the Union Pacific West Oakland Intermodal Railyard to the south.



The Fleet & Industrial Supply Center Oakland and Port of Oakland are located two miles west of the central business district of the City of Oakland.

Regional Location

Developed by Tetra Tech

Fleet & Industrial Supply Center Oakland
and Port of Oakland

Figure 1-1

Port of Oakland

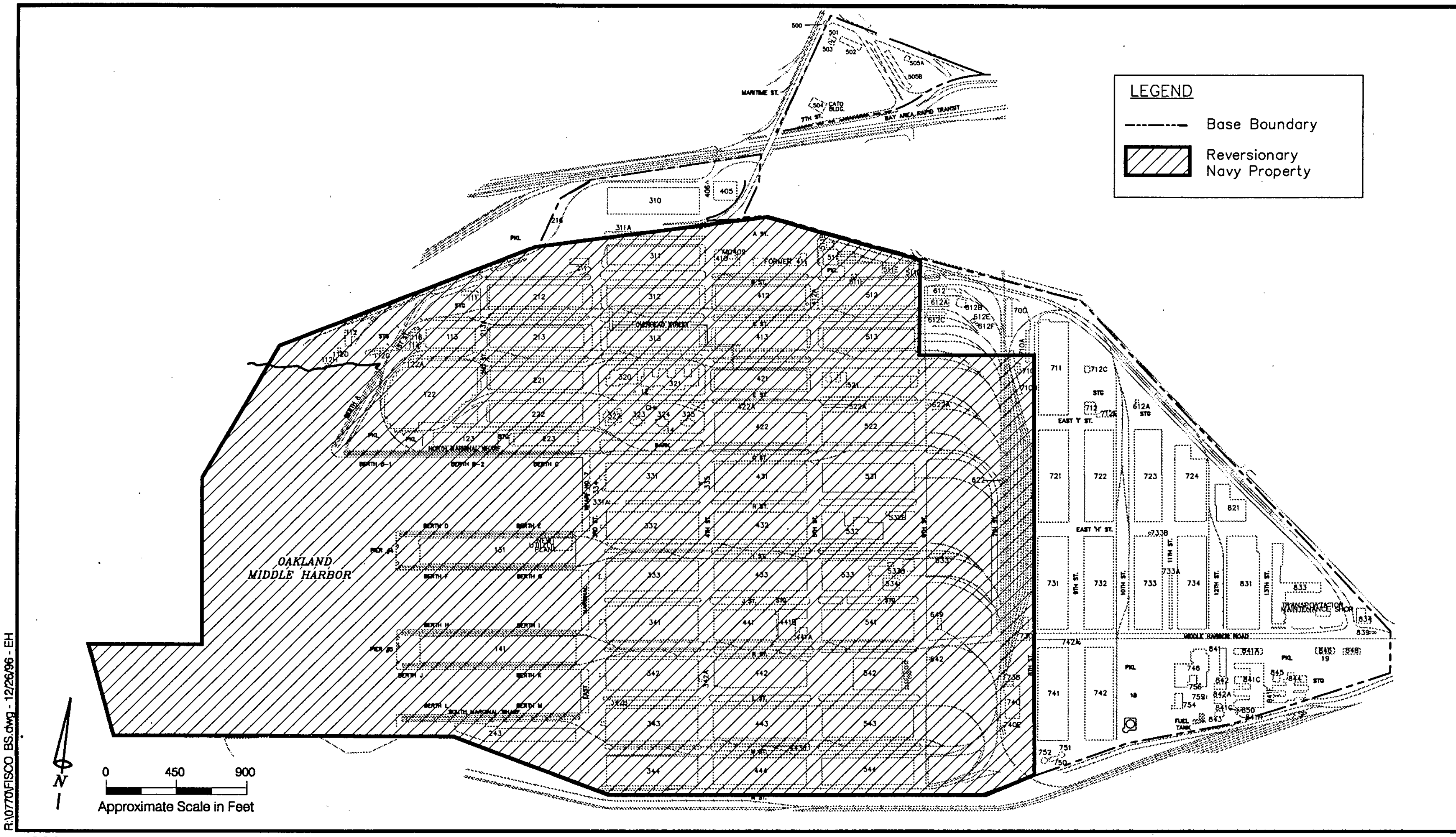
1.1.2 History

The Navy constructed the Oakland Naval Supply Center, now known as the Fleet and Industrial Supply Center, Oakland, in 1940 to provide logistical support for military activities in the Pacific region during World War II. The site was constructed on 392 acres of former tidal marshlands that were dredged and filled, including 290 upland acres and 102 acres submerged under the Oakland Middle Harbor. Approximately 392 acres of the 528-acre FISCO site will revert to the Port's ownership when the Navy has no further use for the site. The 392 acres were deeded to the Navy by the City of Oakland in May 1940 for the price of one dollar. This property sale was recorded with a reversionary clause stating that the property would revert to (return to) the Port should the Navy decide not to use the property for a naval supply depot or for other naval or military purposes. An additional 136 acres of upland property were acquired by the Navy from a number of other parties bringing the total FISCO acreage to 528. The additional 136 acres did not include any stipulation for reversion to the Port. Figure 1-2 shows reversionary and nonreversionary Navy property at FISCO. Figure 1-3 shows FISCO in the context of the larger Vision 2000 project site.

From World War II through the 1980s, FISCO was the main supply facility supporting Department of Defense (DOD) activities in the Pacific Basin. The mission of FISCO was to provide supply and support services to fleet units and shore activities, as assigned. Since the mid-1980s, the Port has been negotiating to acquire Navy property for development and expansion of maritime and transportation-related facilities.

Pursuant to the Military Construction Authorization Act for fiscal year 1993, the Navy was authorized to lease up to 195 acres of FISCO to the Port for 50 years (P.L. 102-484, Section 2834). This special federal legislation was passed in response to a reduction in military activities at FISCO and the Port's interest in development and expansion. The act was amended in 1994 to allow the Port to lease any areas of FISCO determined available for lease by the Secretary of the Navy (P.L. 103-160, Section 2833).

In 1995, the Navy and the Port produced a joint EIS/EIR for leasing of up to 220 acres of FISCO to the Port for the development of expanded intermodal rail facilities and maritime-related tenant uses. The term "intermodal" refers to the shipping of containers from origin to destination using a combination of marine, rail, and truck transportation. The EIS/EIR was certified by the Board of Port Commissioners on April 4, 1995, and the Navy entered a Record of Decision on May 24, 1995. Subsequently, the Port has pursued a phased leasing program of FISCO property as it has become available from the Navy. The acreage leased to date is under limited development for use as general transportation support activities, including warehousing, container depot activities, loading, and container cargo stations.



FISCO is 528 acres and has about 125 structures that support general supply operations, waterfront operations, and administration.

Source: FISCO March 1996; Port of Oakland May 1996

FISCO Buildings and Streets

Fleet & Industrial Supply Center Oakland
and Port of Oakland

Figure 1-2

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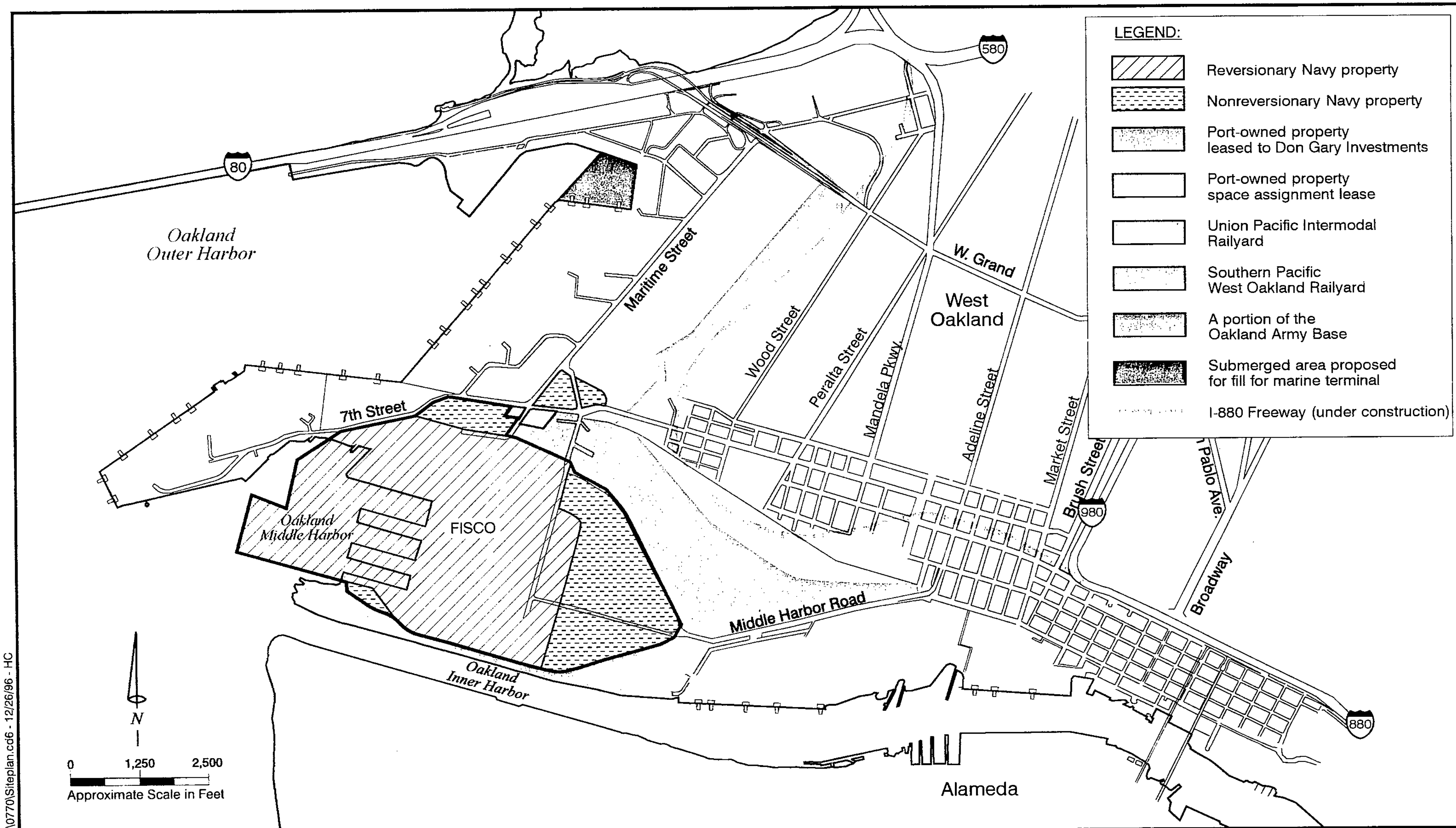

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FISCO covers 528 acres of upland and submerged property, some of which reverts to the Port of Oakland (reversionary) and some of which that does not (nonreversionary). The Vision 2000 Program includes all of FISCO as well as other off-site property.

Source: Port of Oakland 1996

FISCO / Vision 2000 Project Site

Fleet & Industrial Supply Center Oakland
and Port of Oakland

Figure 1-3

Port of Oakland

Congressional action, under the provisions of the Defense Authorization Amendments and the Defense Base Closure and Realignment Act, established a process to close and realign military bases, including FISCO. As part of this process, the Secretary of Defense submitted a consolidated list of recommended closure and realignment actions to a bipartisan commission appointed by the president and confirmed by the Senate. The Defense Base Realignment and Closure Commission (BRAC Commission) evaluated the recommendations and sent the findings to the president. In 1995, the BRAC Commission recommended the closure of FISCO. The president accepted the recommendation and the Congress confirmed the closure decisions. The confirmation mandated that the Navy close the FISCO property and facilities. As a result, FISCO is scheduled for operational closure in September 1998.

Most of the 136 acres of nonreversionary Navy property already has been leased to the Port on a 50-year lease under the provisions of previous special legislation (i.e., P.L. 102-484, as amended by P.L. 103-160). Under P.L. 104-106, the Navy can convey the 136 acres of nonreversionary Navy property directly to the Port upon FISCO's closure. This authority can be exercised exclusive of the specific federal property disposal laws and regulations required for BRAC disposals pursuant to the Defense Base Closure and Realignment Act. Relevant sections of the public laws cited in this EIS/EIR are provided in Appendix B.

The Navy has taken action to relinquish its exclusive and partial legislative jurisdiction over FISCO lands to the state of California. The state filed an Acceptance of Retrocession of Legislative Jurisdiction with the California Secretary of State on May 16, 1996, which was recorded in the Alameda County Recorder's Office on May 20, 1996 (US Navy 1996d).

The California State Lands Commission has jurisdiction over ungranted tidelands and submerged lands owned by the state and the beds of navigable rivers, streams, bays, estuaries, and inlets within its boundaries (Public Resources Code, Section 6301). This type of land is commonly referred to as public trust land subject to use restrictions by the State Tide Land Trust. This trust has been established by state law to protect public interests in commerce, navigation, fisheries, water-oriented recreation, habitat, and environmental study. The purpose of the trust is to assure that land which adjoins the state's waterways or is actually covered by those waters remains committed to water-oriented uses benefiting the greatest number of people.

Generally speaking, public trust lands are to be used for commerce, navigation, fisheries, water-oriented recreation, and preservation in its natural condition for habitat and study. The range of uses possible include but are not limited to harbor related, such as port facilities, warehouses, marinas, and shipyards and ecologically related uses such as wetlands, wildlife preserves, open space, parks and greenways. The majority of nonreversionary Navy property is not subject to the State Tide Land Trust; however, the Port's proposed reuse of both

reversionary and nonreversionary Navy property is consistent with appropriate uses for public trust lands.

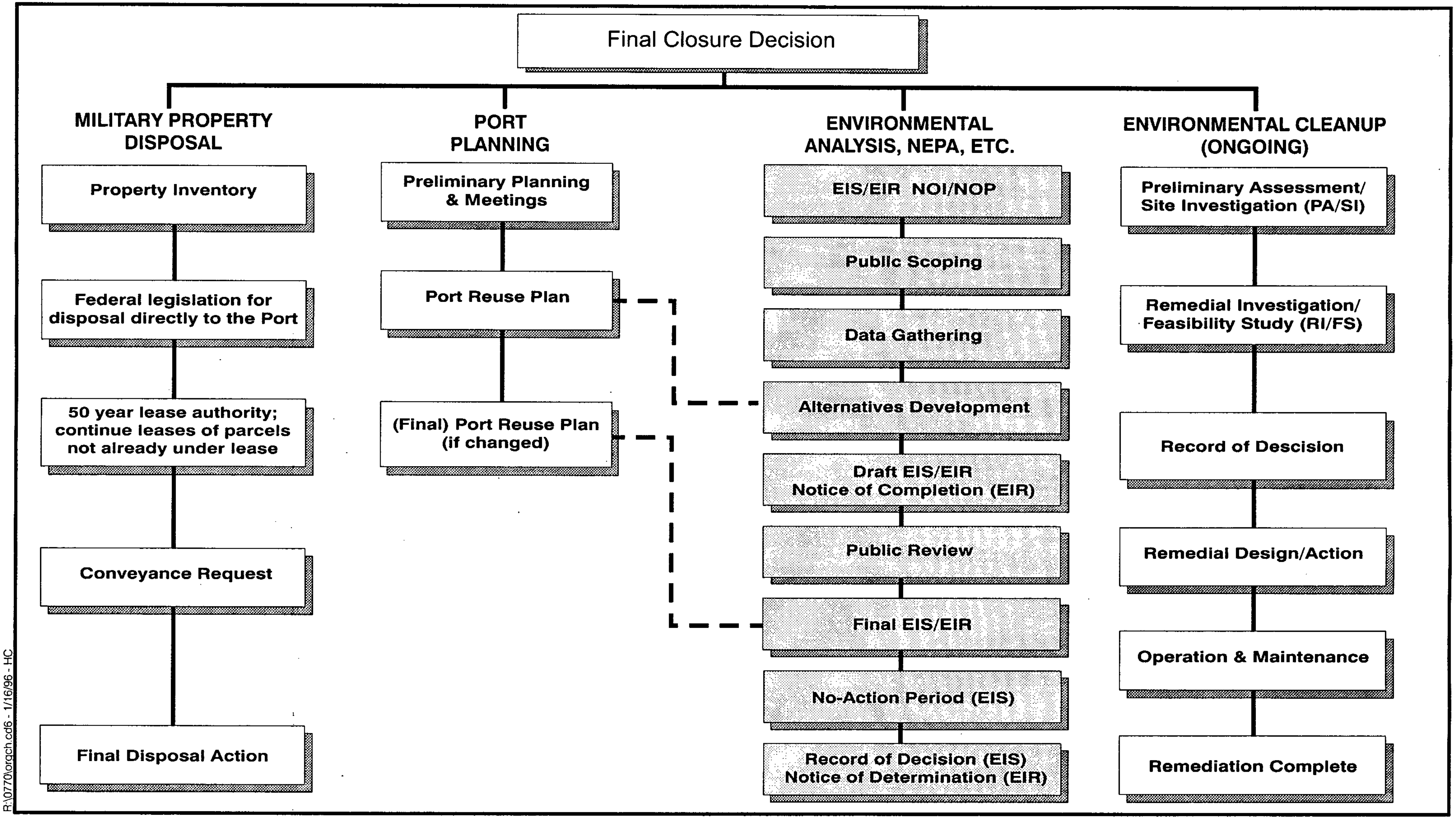
1.2 PURPOSE AND NEED FOR THE DISPOSAL OF FISCO

The DOD has for the past several years been reducing its basing and staffing requirements to match current force structure plans. As a result of this reduction, portions of FISCO were identified as underutilized. The Port expressed an interest in development of the underutilized FISCO property for expansion of its operations. In 1992, Congress passed special legislation (P.L. 102-484, Section 2834) giving the Navy authority to lease not more that 195 acres of FISCO to the Port. In 1993, Congress passed additional special legislation (P.L. 103-160, Section 2833) giving the Navy authority to lease any portion of the FISCO property determined to be available for lease. In 1995, the Defense Base Realignment and Closure Commission recommended closure of FISCO. The recommendation to close FISCO was subsequently approved by Congress and the President. In early 1996, Congress passed special legislation (P.L. 104-106, Section 2867) giving the Navy authority to convey to the Port all FISCO property not already subject to reversion as a requirement of law. This proposed action, the disposal of nonreversionary Navy property, is the result of that special legislation.

1.3 DISPOSAL OF FLEET AND INDUSTRIAL SUPPLY CENTER, OAKLAND

The disposal of the 136 acres of nonreversionary Navy property at FISCO is the federal action considered in this EIS/EIR. The Navy has the authority under special legislation (i.e., P.L. 104-106) to dispose of all nonreversionary Navy property directly to the Port. For purposes of the Navy NEPA analysis, direct environmental consequences or impacts are those associated with Navy disposal of nonreversionary Navy property and the No Action Alternative, indirect impacts are associated with Port reuse of nonreversionary Navy property, and cumulative environmental impacts are associated with the Port's reuse of reversionary Navy property and non-Navy property needed for the Vision 2000 Program. The Navy has no control over the Port's use of reversionary Navy property after reversion to the Port, nor does the Navy have control over the Port's proposed use of non-Navy property.

The disposal process encompasses several concurrent actions, as outlined in Figure 1-4. The federal government is responsible for environmental cleanup and disposal of the property, while the Port is responsible for preparing and implementing a reuse plan for the property. The Port's reuse plan includes 136 acres of nonreversionary Navy property, 392 acres of reversionary Navy property, and 290 acres of non-Navy property and is described in Chapter 2. The following narrative describes the actions associated with disposal of the 136 acres of nonreversionary Navy property.



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After a decision to close a base, concurrent processes take place prior to property transfer.

Source: EFA West 1996

Elements of FISCO Base Conversion and Disposal Process

Fleet & Industrial Supply Center Oakland
and Port of Oakland

Figure 1-4

Port of Oakland

1.3.1 Predisposal Actions

The description of predisposal actions includes caretaker activities, including site cleanup operations, and leasing activities.

1.3.1.1 Caretaker Activities

After closure, FISCO may be placed in a temporary caretaker or inactive status under Navy control, and it would be reassigned to the custody of the Navy's Engineering Field Activity West in San Bruno, California. Existing Port activities on leased FISCO property would continue during this period. The installation would be closed, as mandated by law, with on-site Navy activity limited to security, maintenance, environmental restoration activities, and those actions associated with caretaker status of nonreversionary Navy property. The Navy will establish a Navy Caretaker Site Office in Alameda, responsible for caretaker services on all Navy bases closing in the East Bay, including FISCO, until the property is conveyed out of Navy ownership.

The Navy anticipates that up to 34 workers would be assigned to perform caretaker functions at FISCO in the event that any portion of the property is not under lease to the Port (Bonino, M., June 17, 1996, personal communication). These workers would be responsible for completing cleanup at the site, would oversee security, maintenance, and environmental work, and would include an administrative staff, a fire/security staff, and an environmental management staff. All caretaker employees would be affiliated with the Navy Caretaker Site Office or its contractors. Specific caretaker actions performed by on-site employees would include the following:

- Inspection and maintenance of utility systems essential to security and telecommunications and of roads to avoid irreparable deterioration. Nonessential elements of utility systems and some entire systems, such as alternate systems, could be abandoned while still meeting caretaker requirements;
- Periodic landscape maintenance around unoccupied structures, as necessary, to protect the structures from fires and to prevent nuisance conditions;
- Maintenance of property access for servicing and maintaining utility and infrastructure systems;
- Continuance of security patrols and maintenance of security systems; maintenance of perimeter fences; addition of interior fencing, if any, around hazardous waste sites, depending on the length of time the areas may remain in caretaker status;
- Maintenance of fire prevention and protection services;
- Cleanup of contaminated sites;

- Continuation of land management programs, such as natural resource management, pest control, erosion control, and tree removal; and
- Minimal maintenance of structures and other facilities to facilitate interim use leasing or economical resumption of use.

Characterization and cleanup of contaminated sites is the responsibility of the Navy and is in progress. It is not anticipated to be completed by the time of closure. However, cleanup is scheduled to be completed before the Navy conveys the property.

This EIS/EIR addresses the areas within FISCO that require characterization or cleanup by describing the nature and extent of the contamination in an overall environmental context and by referring to the cleanup status.

1.3.1.2 Leasing

The Port will have leased all of FISCO before it closes in September 1998. Most of the 136 acres of nonreversionary Navy property are under a 50-year nonrenewable lease from the Navy to the Port. The Port subleases portions of FISCO to numerous other firms associated with shipping operations in the Bay Area. Leasing will continue until FISCO is closed.

1.3.2 Disposal Process

The Military Construction Authorization Act was amended in 1994 to give the Navy the discretionary authority to convey the nonreversionary Navy property at FISCO directly to the Port of Oakland (P.L. 104-106, Section 2867). This authority can be exercised exclusive of the specific federal property disposal laws and regulations required for BRAC disposals pursuant to the Defense Base Closure and Realignment Act. The Navy's plan to exercise the special legislative authority under P.L. 104-106 to convey the nonreversionary Navy property to the Port was formalized through publication of the Notice of Intent to prepare this EIS/EIR in May 1996 (see Section 1.9.1).

In December 1995, before the plan was announced to convey the site directly to the Port, the Navy completed the DOD and federal screening process for FISCO required as part of the BRAC property disposal process. Two federal agencies—the US Maritime Administration, Department of Transportation (MARAD), and the Army/Air Force Exchange Service (AAFES)—submitted applications requesting portions of FISCO. The AAFES subsequently withdrew its application for interest in any FISCO property, and it is anticipated that MARAD also will withdraw its request. Because the Navy plans to convey FISCO under special legislation, the Navy will not issue a Surplus Determination Notice for FISCO, and it is not required to undergo additional property screening processes established under BRAC.

1.4 LOCATION AND HISTORY OF VISION 2000 PROGRAM

In response to the recognized need to increase capacity and improve efficiency of integrated intermodal cargo transportation services, the Port has developed the Vision 2000 Program. This program is a schedule of phased improvements or development projects to modernize and expand the Port's facilities.

The Vision 2000 Program proposes development of ship, rail, and truck cargo handling facilities to meet the anticipated demand for transportation services in the San Francisco Bay Area and northern California, and to serve markets in the Midwest and beyond. Together, ship, rail, and truck services comprise an intermodal transportation network that allows the Port to receive cargo from ships crossing the Pacific Ocean and then to distribute this cargo across the United States via train and truck. The Vision 2000 Program also includes development of public waterfront access and a marine habitat enhancement area. Implementation of the program would achieve the following objectives:

- Respond to continuing trends and requirements in maritime container shipping and overland transportation by constructing expanded modernized intermodal rail facilities and marine terminals (particularly by relocating rail facilities along the Oakland Inner Harbor off the waterfront to free up valuable property for marine terminal expansion);
- Increase productivity and improve efficiency of Port integrated intermodal services;
- Provide for the growth of railroad intermodal capacity;
- Generate revenue for its own operations and fund future growth to ensure the continued viability of the Port;
- Ensure that proposed uses will, to the extent feasible, provide needed employment and open space opportunities; and
- Improve estuarine habitat.

1.4.1 Location

The Vision 2000 project site includes the 528-acre FISCO site, as well as 290 acres beyond FISCO property boundaries, for a total of up to 818 acres. The Vision 2000 Program site is bounded by the Oakland Middle Harbor to the west, the Oakland Inner Harbor to the south, the Southern Pacific West Oakland Railyard to the east, and other Port-owned property to the north (Figure 1-3). Portions proposed for development under the Vision 2000 Program include FISCO and properties outside the FISCO site. This non-Port-occupied, non-Navy property may include the following parcels:

- Port-owned property leased to Don Gary Investments, Ltd. (9 acres);

- Port-owned property leased to various tenants on a space assignment basis (5 acres);
- Port-owned property leased to Union Pacific Railroad, part of its West Oakland Intermodal Railyard (90 acres);
- Union Pacific-owned property, part of its West Oakland Intermodal Railyard, (15 acres);
- Southern Pacific-owned property, a portion of the Southern Pacific West Oakland Railyard (133 of approximately 300 acres);
- A portion of the Oakland Army Base (11 acres) (the Navy has no disposal authority over the Oakland Army Base property and any decision allowing Port use of this 11-acre area would require separate Army approval); and
- Submerged property at the end of the Oakland Outer Harbor near the Sea-Land Terminal (27 acres).

The entire site is currently in use for transportation and distribution activities.

1.4.2 History

The Port of Oakland is an independent agency of the City of Oakland, created by City Charter in 1927. Through the Board of Port Commissioners, appointed by the mayor and confirmed by the City Council, and under the direction of the Executive Director, the Port is the public agency responsible for planning, developing, and administering the City of Oakland marine terminal facilities for waterborne commerce. The Port is a major center for containerized cargo on the west coast. During 1995, it is estimated that the Port facilities handled over 24 million revenue tons of cargo in over 1.6 million containers. The Port of Oakland is the fourth largest container port in the United States. This containerized cargo includes a full range of commodities, including import of electronic goods, consumer products and automobile parts and exports of food products, cotton, paper products, and other raw materials. In 1995, over 1,600 container vessels called at the Port, providing global transportation services.

1.5 Purpose and Need for the Vision 2000 Program

Upon FISCO's closure, 392 acres will revert automatically to Port ownership and the Navy will convey the remaining 136 acres to the Port. The Port plans to reuse FISCO and other nearby non-Navy property as components of its Vision 2000 Program. The Vision 2000 Program will develop the property in a manner consistent with Port uses and activities. The program will be in compliance with the site's port priority use, as designated in the April 1996 San Francisco Bay Conservation and Development Commission (BCDC) and the Metropolitan Transportation Commission (MTC) Seaport Plan Update (BCDC and MTC 1996). Finally, the Vision 2000 Program will use existing site facilities, which

include all the components necessary for intermodal cargo transport—marine terminals, rail systems, truck access, and warehousing and storage.

The Port has experienced a unique business pattern. Its volume container through-put has been growing, while according to records maintained by the Pacific Maritime Association, its market share has declined (Figure 1-5). Contributing to this pattern has been the lack of adequate channel depth for today's container vessels, noncompetitive intermodal service, and the lack of marine terminal capacity. The Vision 2000 Program addressees the last two problems directly; current and planned Port dredging projects, in coordination with the US Army Corps of Engineers, will deepen the channel to accommodate most container vessels.

The ability to draw intermodal business to the Port is critical because intermodal business is a major source of revenue. Moreover, intermodal cargo constitutes a significant portion of the shipping lines' operating expenses, and handling intermodal cargo efficiently and cost-effectively is a major consideration for shipping lines deciding on a particular port. The proposed addition of a joint intermodal railroad terminal provides shipping lines with a near-dock, high capacity facility that will allow them to move intermodal cargo through the Port. The railroads will realize cost savings because developing the intermodal terminal will make the Port competitive with other west coast ports.

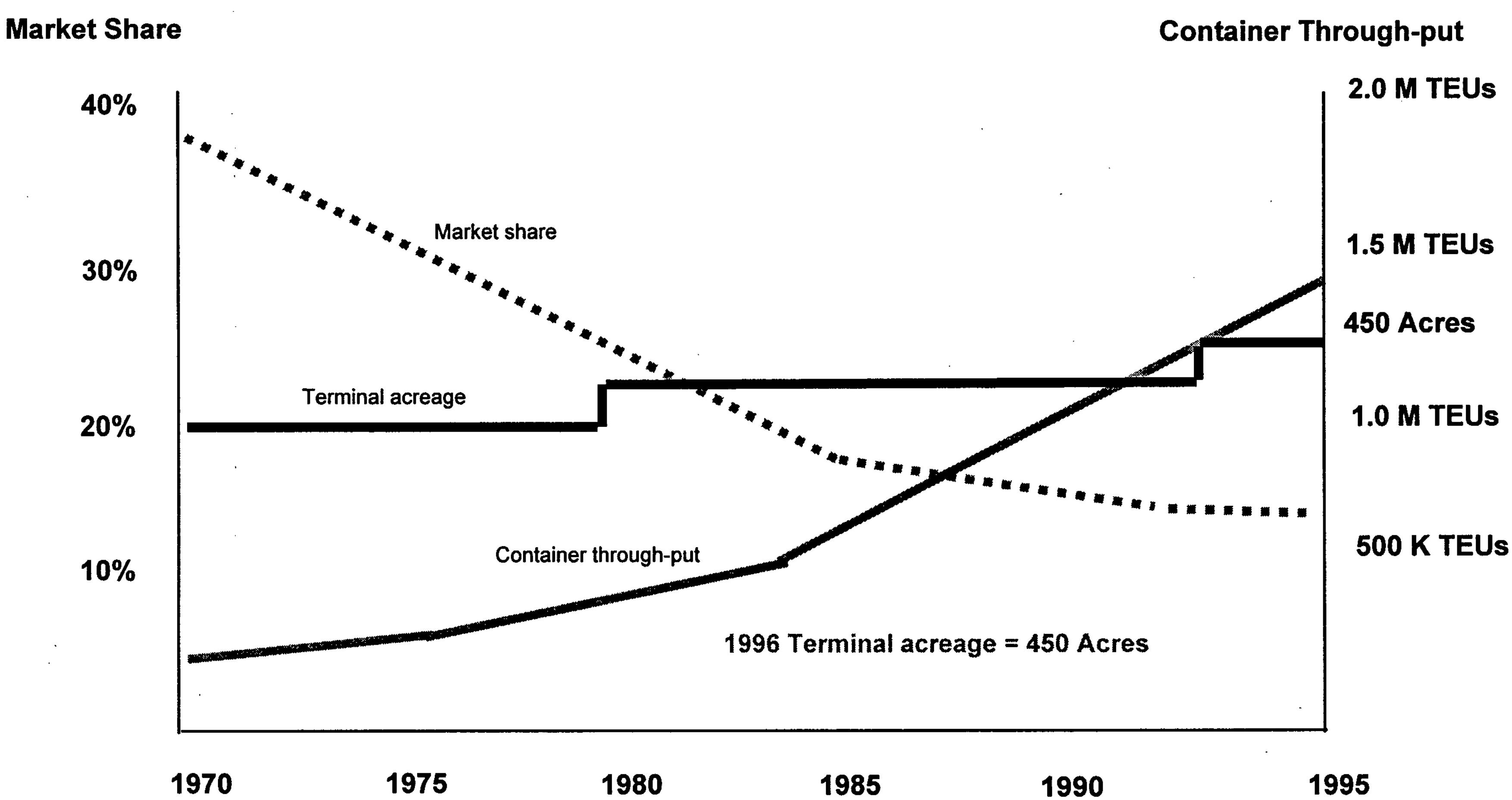
Expanding the Port has been constrained by the surrounding federal property and by restrictions on placing landfill in San Francisco Bay. In the last five years, ports in Southern California and the Pacific Northwest have added over 1,400 acres of new terminals. The Vision 2000 Program will give the Port its first opportunity to expand since the early 1970s.

Without expanding, the Port will not be able to handle the growth of local cargo into the next century. This will necessitate constructing facilities at other less desirable locations on San Francisco Bay or diverting the cargo to Southern California, resulting in the loss of jobs and added cost.

Building new terminals, upgrading older terminals, and improving transportation infrastructure in the Port area is costly. The Port finances capital expenditures through debt that is repaid through revenue generated from the terminals. The Vision 2000 Program is necessary to ensure that the Port will keep its maritime customers, to finance its activities, and to fuel economic development in the region. The Vision 2000 Program qualifies for funding through the Department of Transportation, Federal Highway Administration's Intermodal Surface Transportation Efficiency Act (ISTEA) of 1991.

The Vision 2000 Program accomplishes the following goals:

Figure 1-5
Port of Oakland
Cargo Growth and Marine Terminal Capacity



Source: Port of Oakland 1996
Notes: M: Million
K: thousand
TEUs: Twenty-foot equivalent units

- Provides marine terminal capacity sufficient to support the increase in cargo coming through Port facilities;
- Allows the Port to remain competitive in the growing maritime intermodal cargo market on the west coast; and
- Takes advantage of the intermodal transport opportunities provided by the Union Pacific Railroad, Southern Pacific Railroad, and Burlington Northern-Santa Fe Railroad.

1.5.1 West Coast Port Intermodal Market Development

The waterborne movement of international cargo through west coast ports has more than doubled in the last twenty years. The west coast share of total US-foreign container vessel trade on regularly scheduled services has grown from 18.8 percent in 1980 to over 50 percent in 1995. There are two major reasons for this growth. The first is the growth of US trade with countries of the Pacific Rim. The second reason is the development of efficient, competitive, intermodal railroad services between west coast ports and points throughout the continental United States. This intermodal service has allowed shipping lines to eliminate sending container vessels to the Gulf of Mexico and the east coast ports and to develop new markets for direct transport to inland points.

In 1982, trade between Asia (dominated by Japan and Korea) and the United States accounted for nearly 10 million metric tons of cargo. That same year, trade with Europe accounted for 8.5 million tons. By 1994, trade with Asia accounted for over 20 million tons, while trade with Europe stood at approximately 14 million tons. Trade with Europe actually declined between 1986 and 1993. US trade with traditional Pacific Rim economic giants, Japan and Korea, continues to grow. New markets in China, Singapore, Indonesia, Malaysia, and the Philippines are generating double-digit growth in US foreign trade with these areas. This trend is expected to continue.

The proximity of west coast ports to Asian markets ensures that these ports will continue to enjoy a large US/Pacific Rim market share. The emergence of cost-effective, transcontinental intermodal railroad services has become a major factor in the diversion of Pacific Rim cargo from both east coast and Gulf of Mexico ports to west coast ports.

Traditionally, container vessels have served all three coastal areas of the US by traversing the Panama Canal. A round-trip voyage from Japan, through the Panama Canal to Houston, and then up the east coast to Charleston, Baltimore, and New York could take up to 70 days. In the 1970s, shipping lines discovered that they could take 15 to 20 days from the round-trip by discharging and loading cargo for the Gulf ports on the west coast. The ship then could sail directly to the east coast. The cargo on the west coast then would be moved to Gulf ports via rail. The added expense of moving the cargo by rail was offset by the better

utilization of the container vessel—shipping lines could provide more frequent service with fewer ships.

In 1984, railroads began using double-stack railcars, allowing tremendous increases in the amount of cargo moving through west coast ports. The double-stack railcar stacks two containers on each of its five platforms, which reduces operating costs significantly through weight savings and superior aerodynamics. This means fewer ships can move more cargo from Asia to the west coast, as more rail cars move cargo across the United States to the east coast.

International intermodal service is the fastest growing segment of Pacific Rim trade. Because all three major port areas on the west coast have both rail services and container facilities, competition among ports for intermodal cargo is fierce. While continuing to experience healthy overall growth, the Port has not enjoyed the same increases in intermodal cargo as other west coast container ports. The structure of rail routes and restricted tunnel clearances have limited the use of double-stack equipment by the three railroads serving Oakland. As a result, Port customers have experienced some disadvantage in rail rates and services, as compared to other ports.

In the last few years, a series of railroad mergers, tunnel improvements, and changes in overall transportation economics have made double-stack train services available in Oakland. With all three railroads now able to provide double-stack services, the Port has accelerated its efforts to increase productivity and efficiency. Studies performed between 1989 and 1991 found that the Port would have enough capacity in both its marine terminals and at the railroad intermodal yards to handle predicted growth only until the end of the century.

In a demonstration of the dynamic changes that can occur in the intermodal market place, both the Union Pacific Railroad and the Southern Pacific Railroad experienced a nearly 70 percent collective increase in traffic at the Port between 1990 and 1994, and the Port has added five new shipping lines in the last two years. The result is that the Port must begin developing several new terminals before the end of the century, and Union Pacific Railroad must expand its capacity immediately.

1.5.2 Cargo Growth and Marine Terminal Capacity

A 1991 study projected overall Port growth to be five percent per year through the remainder of the century (Wharton 1991). The Port's actual growth over the last ten years has averaged seven percent. This overall growth in volume comes despite the Port experiencing a decline in west coast market share from 40 percent in 1970 to 15 percent in 1995, the result of the Port's inability to fully share in the growth of the intermodal segment of business.

Another 1991 study predicted that demand would exceed the Port's marine terminal capacity in 1993 and that the marine terminal capacity would become

constrained by 1998 (Miller 1991). This study did not take into account the addition of the new TraPac terminal, which has since opened in the Oakland Outer Harbor. The study also was based on operating practices employed in 1991, which since have increased marine terminal storage capacity by storing containers off the dock and on the ground rather than on chassis.

However, even with the added capacity of the TraPac terminal and significant modifications to current terminal operating practices, the approximate seven percent growth rate that the Port has experienced over the last five years indicates that terminal capacity will be exceeded by demand before the turn of the century. As terminals become more congested, the shipping companies must make changes in their operations, resulting in higher operating costs.

Regardless of what happens to the Port's ability to capture the intermodal cargo, the local cargo through the Port of Oakland will continue to grow. The growth of local cargo is the result of population and economic market forces in the Northern California region. If the Port does not expand and reaches its capacity, local cargo growth still will have to be accommodated. Likely scenarios will require constructing marine terminals or retrofitting existing facilities at other Bay Area locations, such as San Francisco or Richmond. Other options to handle the increase in Bay Area cargo might include serving parts of Northern California through Southern California ports. Any of these options will result in increased cost of operations, an increase in highway traffic, and additional dredging and filling of San Francisco Bay. Cargo handled at Southern California ports will result in loss of jobs and economic benefit to the Bay Area. The potential loss of revenue to the Port could seriously jeopardize the Port's abilities to finance and maintain its own facilities.

1.5.3 Railroad Operations and Intermodal Business

Oakland is the major Northern California hub for intermodal business for the Southern Pacific and Union Pacific Railroads, which are in the process of merging. This EIS/EIR's impact analyses assume that the merger has been fully implemented. However, for the purpose of these analyses, the Southern Pacific and Union Pacific Railroad operations and facilities in the Bay Area are discussed separately. (The Burlington Northern-Santa Fe Railroad has its major intermodal classification yards in Richmond, approximately 11 miles from the Port with access over I-80).

The Union Pacific Intermodal Railyard is 105 acres and includes 90 acres of Port-owned property in the Oakland Inner Harbor. The Union Pacific Intermodal Railyard handles both carload traffic and intermodal business. This facility is at capacity, in terms of both track capacity and yard space. Because of the Union Pacific and Southern Pacific merger, Union Pacific will not expand this site.

The Southern Pacific West Oakland Yard occupies a larger facility of 300 acres that includes intermodal, carload, and maintenance shops and some nonrail

business. The Southern Pacific West Oakland Yard has insufficient track length to assemble long trains, and provides the least efficient and least cost-effective service to the Port's international customers. However, this railyard does have room for significant expansion.

Burlington Northern-Santa Fe has excellent service to both the midwest and southeastern points. However, transporting containers to and from the Richmond terminal via truck adds significant cost to shipping lines, and the movement of containers over I-80 is undesirable due to congestion and vehicle emission considerations.

While the merger of the Union Pacific and Southern Pacific Railroads should alleviate some of the shorter term capacity concerns in Oakland, the predicted growth of both domestic and international business of the combined railroads will exceed the capacity available in the next ten years. Studies indicate that the current Southern Pacific facility has a theoretical capacity of about 500,000 lifts (a lift is defined as a single movement of cargo) due to property constraints and track configuration. Over the last five years, the combined Union Pacific/Southern Pacific intermodal business has grown at a rate of slightly more than ten percent per year. While business leveled off in 1995 and early 1996—partly due to capacity restraints—experts have estimated conservatively that growth should continue at an annual rate of eight percent (Port of Oakland 1995a). At that rate, the existing capacity of intermodal facilities will be reached by 2003. The projected growth of Burlington Northern-Santa Fe business, particularly in the international markets, has been and will continue to be hampered by transport between Oakland and Richmond for both cost and operational reasons. Given these eventual capacity constraints, the ability of the Port to attract intermodal business becomes very limited.

1.6 USE OF AN INTEGRATED DOCUMENT

This integrated programmatic EIS/EIR has been prepared to assess the potential significant environmental impacts of FISCO property disposal and reuse, as well as reuse of nearby non-Navy property included in the Port's Vision 2000 Program. Decisions regarding which bases to close, relocate, or realign were exempted by Congress from NEPA documentation requirements under the Defense Base Closure and Realignment Act (P.L. 101-510, Section 2905). However, under NEPA, the Navy must consider the environmental effects of reasonable alternatives for the disposal and reuse of property at closing bases. The Port is required by CEQA to evaluate the environmental effects of implementing its proposed Vision 2000 Program. For purposes of the Port's CEQA analysis, this evaluation encompasses both the nonreversionary Navy property at FISCO that will be conveyed to the Port upon closure, as well as reversionary Navy property and other non-Navy property outside the FISCO boundary.

The Navy will use this EIS/EIR in its consideration of disposal options for nonreversionary Navy property and structures at FISCO. The Navy will consider all environmental impacts identified in the EIS/EIR in its decision process before issuing a record of decision (ROD). Following disposal, no additional NEPA review by the Navy will be required. As required by NEPA, an environmentally preferable alternative is identified in Chapter 2. For purposes of the Navy's NEPA analysis, direct environmental consequences or impacts are those associated with Navy disposal and the No Action Alternative, indirect impacts are associated with Port reuse of nonreversionary Navy property, and cumulative environmental impacts are associated with the Port's use of reversionary Navy property and non-Navy property. The Navy's disposal decision regarding its 136 acres of nonreversionary Navy property cannot either restrict or allow use of these adjoining properties.

The Port will certify the EIS/EIR and use the document in its consideration of future project approvals required to implement the Vision 2000 Program. Should any approvals by the Port include significant unavoidable environmental impacts, the Port would be required to adopt a statement of overriding considerations. As required under CEQA, an environmentally superior alternative is identified in Chapter 2.

For purposes of CEQA, this joint EIS/EIR document is a program EIR. The Port will prepare project EIRs that tier off this program EIR as later activities proposed as part of the Vision 2000 Program become ripe for decision-making and approval. The EIS/EIR is intended to provide decision-makers, responsible agencies, and the public with adequate information on the potential range of environmental impacts to make decisions on the various overall alternatives at a level of detail consistent with the Port's Vision 2000 planning efforts to date.

1.7 Document Organization

Chapter 1, Purpose of and Need for Action, provides an overview of the reasons for Navy disposal and Port reuse of FISCO pursuant to the Port's Vision 2000 Program. It includes a description of the EIS/EIR content and approach, a description of the decision process for disposal of FISCO, and a description of the disposal process and of the public involvement process used to solicit input on the potentially significant environmental impacts.

Chapter 2, Alternatives, Including the Proposed Action, provides a description of the proposed Navy disposal action and a summary of the planning process leading to development of the Port's Vision 2000 Program. This EIS/EIR analyzes the following alternatives:

- No Action Alternative;
- Navy Disposal;
- Maximum Marine Terminal/Maximum Rail Terminal Alternative;
- Minimum Marine Terminal/Minimum Rail Terminal Alternative;

- Maximum Marine Terminal/Minimum Rail Terminal Alternative; and
- Reduced Harbor Fill Alternative.

The four reuse alternatives under consideration combine the common land use components of an intermodal rail terminal, marine terminals, and public waterfront access and marine habitat enhancement in different acreage configurations. As FISCO is within Port of Oakland jurisdiction and is designated as a port priority use area in the April 1996 San Francisco BCDC and MTC Seaport Plan Update (BCDC and MTC 1996), alternatives emphasize port-related activities.

Chapter 3, Affected Environment, presents a description of the existing environmental and socioeconomic conditions that may be affected by the proposed action at FISCO and other non-Navy property included as part of the project site. The setting discussion also includes an identification of the region of influence applicable to each resource area.

Chapter 4, Environmental Consequences - Navy Actions, describes the potential significant environmental consequences, or impacts, of Navy actions, namely, the No Action Alternative and Navy disposal of FISCO. Direct and indirect impacts are identified, and mitigation measures are identified for any impact determined to be significant. The purpose of this chapter is to provide the public, interested agencies, and decision-makers with a clear understanding of the environmental impacts of the Navy's actions.

Chapter 5, Environmental Consequences - Port Reuse Alternatives, describes the potential significant environmental consequences, or impacts, of Port reuse of FISCO and other nearby non-Navy property. Impacts are described at a level of detail consistent with the level of detail available on the Vision 2000 Program. Direct and indirect impacts are identified, as well as mitigation measures for any impact determined to be significant. Similar to Chapter 4, Chapter 5 provides the public, interested agencies, and decision-makers with a clear understanding of the environmental impacts of adopting (or not adopting) any of the Vision 2000 Program alternatives for reuse.

Chapter 6, Other Considerations Required by NEPA/CEQA, addresses five other topics required by state or federal regulations. These include identification of any unavoidable adverse impacts to the environment (NEPA/CEQA), short-term uses and long-term productivity (NEPA/CEQA), identification of irreversible and irretrievable commitments of resources (NEPA/CEQA), analysis of growth-inducing impacts (CEQA), and analysis of cumulative impacts (NEPA/CEQA). Any potential disproportionate adverse impacts on low-income and minority populations are also described, in accordance with Executive Order 12898 on Environmental Justice (NEPA). Effects found not to be significant are identified (CEQA).

Chapters 7 through 11 provide the reader with background information on consultation with interested and responsible agencies, a list of references, a list of preparers, a distribution list for the EIS/EIR, and an index and glossary.

Technical appendices are presented under separate cover as Volume II.

1.8 RELATED STUDIES

The reuse planning process for FISCO will occur over several years. During this process, additional environmental and planning studies will be required for property leases and other land use proposals. These related studies are discussed below.

1.8.1 Related NEPA/CEQA Documentation

The Port intends to use this EIS/EIR for all project approvals required to implement its Vision 2000 Program. Such approvals may include, but are not limited to, subsequent project-level environmental reviews that may be required under CEQA for as yet unforeseen developments and impacts that may not have been adequately covered by this document.

1.8.2 Environmental Restoration Studies

The Base Realignment and Closure Cleanup Plan (BCP) for a closing base provides the status of ongoing environmental restoration and associated compliance programs. A Final BCP was issued in October 1996 (US Navy 1996i). The BCP provides a thorough evaluation of the status of various cleanup programs and summarizes the compliance items that would require further evaluation and implementation. The BCP is to be updated annually or as necessary until full restoration is complete.

DOD policy requires the preparation of an environmental baseline survey (EBS) prior to selling, leasing, or transferring real property. The EBS describes whether hazardous materials and wastes were stored on, were released by, were disposed of at, or migrated onto FISCO property. Any environmental cleanup required will be done in accordance with the BCP. The Final EBS was issued in October 1996 (US Navy 1996h).

1.9 PUBLIC INVOLVEMENT PROCESS

The EIS/EIR process is designed to involve the public in federal and local decision-making. Opportunities to comment on and participate in the process are provided during preparation of this EIS/EIR, as outlined in the following sections. Comments from agencies and the public are solicited to help identify the primary issues associated with FISCO disposal and proposed reuse. The Port has conducted additional public meetings and workshops regarding the Vision 2000 Program's public access component in the Middle Harbor. The public is strongly encouraged to comment on the environmental trade-offs and benefits of these conceptual public access plans and to identify the most favorable public access activities. The public's input, as well as feedback from applicable resource

and permitting agencies, will be used to modify the plans, as necessary, prior to final design of the selected project alternative.

The public notification process is intended to include the full spectrum of Oakland residents and community organizations. Chapter 10 includes the distribution list for the EIS/EIR. Appendix D provides copies of relevant public involvement materials, including a copy of the mailing list for the EIS/EIR.

Methods to involve the public in the EIS/EIR process have included the following:

- Conducting a public scoping meeting to solicit comments and to identify issues of concern;
- Conducting a public meeting to receive comments on the Draft EIS/EIR and to initiate the required 45-day public comment period;
- Providing copies of the Draft EIS/EIR to local libraries and Oakland City Hall;
- Publishing public notices of hearings, mailing public announcements, and providing press releases; and
- Creating and updating an extensive mailing list to disseminate information. Approximately 690 letters were mailed to agencies and the community for the public scoping meeting.

The goal for public involvement, under Executive Order 12898 regarding Environmental Justice, is to include all affected low-income and minority populations in the public participation process. To achieve this, the Port has had a series of public meetings with community representatives to learn more about community concerns and to involve the community in its evaluation and implementation of the Vision 2000 Program. The following specific actions were implemented:

- Conducted five public meetings (April 18, July 18, July 24, September 4, and November 7, 1996) in the West Oakland community with easy access by car or public transit;
- Notified and requested comments from several neighborhood associations and minority organizations that may be affected by or interested in the proposed action; and
- Announced the public meetings in newspapers with a wide circulation and encouraged written comments from those unable to attend the meetings.

1.9.1 Scoping Process

The purpose of scoping is to identify potential environmental issues and concerns regarding the disposal and reuse of FISCO and reuse of other nearby non-Navy property. The scoping process for this EIS/EIR included notification via the Federal Register, newspaper ads, and direct mail and conducting a public meeting. The Navy, the Port, and the consulting team considered comments received during the scoping process in determining the issues to be evaluated in the EIS/EIR. The main issues identified during the scoping process were impacts to transportation and public shoreline access. These issues are addressed in Chapters 3, 4, 5, and 6.

The public was notified of the Navy's intent to prepare this EIS/EIR by a Notice of Intent published in the May 30, 1996, issue of the Federal Register (Vol. 61, No. 105). An announcement of the Navy's intent to prepare this EIS/EIR was also sent to the California Office of Planning and Research. The Port filed a Notice of Preparation with the California Office of Planning and Research on May 30, 1996, to prepare a joint EIS/EIR (State Clearinghouse Number 96062010). Both the notice of intent and the notice of preparation were sent to the California State Clearinghouse for distribution to state agencies for review and comment.

To initiate the scoping process, a public notice was published in three local newspapers—the Oakland Tribune, the Oakland Post, and the San Francisco Chronicle. The public notice was published in the Tribune on Sunday, June 2, 1996, and Monday, June 3, 1996; in the Chronicle on Sunday, June 2, 1996, and Tuesday, June 4, 1996; and in the Post on Sunday, June 2, 1996. Scoping letters, with an attached summary of the Vision 2000 Program and a description of alternatives and environmental issues to be considered, were mailed to approximately 690 public agencies, public interest groups, and individuals either known to have or thought to have an interest in the project. The scoping letter invited written comments and announced that a public scoping meeting would be held at the McClymonds High School Auditorium in Oakland on June 13, 1996. The scoping meeting was attended by approximately 29 individuals, including agency representatives and members of the public.

During the EIS/EIR scoping process, which ended July 5, 1996, 19 letters were received from members of the public, interested groups, and federal, state, and local agencies. In addition, seven people provided comments at the scoping meeting. The main issues identified through the scoping process were traffic, truck emissions, public shoreline access, bay fill and dredging, endangered species, and historic structures. Concerns regarding environmental issues have been addressed in the EIS/EIR. Detailed summaries of the scoping comments are provided in Appendix D.

1.9.2 Public Review

A 45-day public review period is provided for the Draft EIS/EIR. Responses to comments received on the Draft EIS/EIR are provided in the Final EIS/EIR. A 30-day no-action review period after preparation of the Final EIS/EIR also will be provided.

1.9.2.1 Draft EIS/EIR

The public is invited to review and comment on the Draft EIS/EIR. A notice of availability is published in the Federal Register, public notices are mailed to those on the mailing list, and press releases are furnished to the local news media. When the Draft EIS/EIR is published, a notice of completion is filed with the Governor's Office of Planning and Research in the State Clearinghouse and a notice of availability is published in the Federal Register. After these notices are published, the EIS/EIR will be released to the public and interested agencies, and a 45-day public comment period will commence. The public and concerned agencies or groups are invited to send written comments on the Draft EIS/EIR to:

Gary J. Munekawa
Code 1852GM
EFA West
900 Commodore Drive
San Bruno, CA 94066
(415) 244-3022
(415) 244-3737 fax

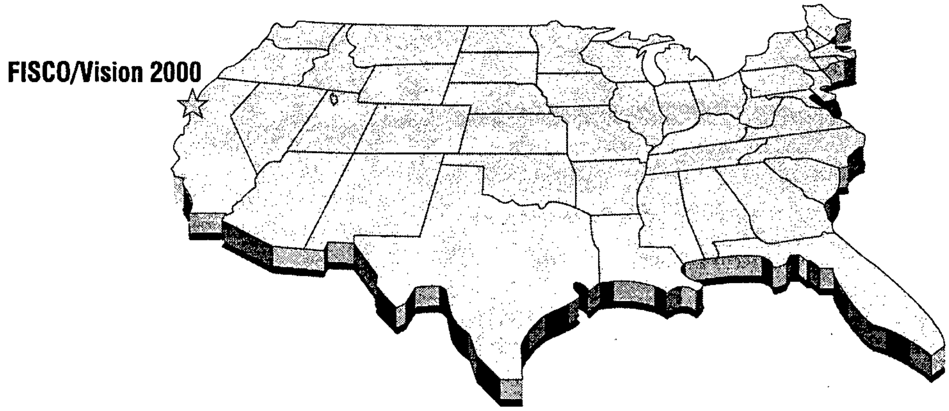
Loretta Meyer
Port of Oakland
530 Water Street
Oakland, CA 94607
(510) 272-1181
(510) 465-3755 fax

A public meeting will be held during the 45-day review period to receive verbal and written comments on the Draft EIS/EIR. The location, date, and time of the meeting will be announced in the media and are included in the transmittal letter accompanying this document.

1.9.2.2 Final EIS/EIR

A Final EIS/EIR, incorporating and responding to comments received on the Draft EIS/EIR, will be published and made available. A notice of availability will be published in the Federal Register and in public notices and press releases.

There will be a 30-day waiting period after the Final EIS/EIR is published. During this period, the public may comment on the adequacy of responses to comments and the Final EIS. After that time, the Navy will issue a record of decision detailing its final property disposal plan. The Port will prepare a notice of determination upon its approval of any Vision 2000 Program alternative.



2.0 ALTERNATIVES, INCLUDING THE PROPOSED ACTION

CHAPTER 2
ALTERNATIVES, INCLUDING THE PROPOSED ACTION

This chapter describes the alternatives considered in this EIS/EIR and the Port of Oakland's Vision 2000 Program planning process. Alternatives that were considered but eliminated from detailed review are also discussed, along with the No Action Alternative, the Navy disposal of the nonreversionary Navy property, and Vision 2000 Program alternatives. For purposes of the Navy's NEPA documentation, direct environmental consequences or impacts are those associated with Navy disposal and the No Action Alternative, indirect impacts are associated with Port reuse of nonreversionary Navy property, and cumulative environmental impacts are associated with the Port's reuse of reversionary Navy property and non-Navy property needed for the Vision 2000 Program.

2.1 NAVY ALTERNATIVES

The Navy can either retain the 136 acres of nonreversionary Navy property in federal ownership or convey the property to the Port. In early 1996, Congress passed special legislation (P.L. 104-106, Section 2867) giving the Navy authority to convey to the Port all FISCO property not already subject to reversion as a requirement of law.

2.1.1 No Action Alternative

FISCO closure has been confirmed by Congress and must be implemented, unless otherwise directed by Congress. The No Action Alternative would result in the Navy retaining ownership of nonreversionary Navy property under caretaker status. Under the No Action Alternative, the Navy would continue leasing the current 528-acre FISCO site to the Port of Oakland under the 50-year lease agreement authorized by special legislation with allowances to the Port to demolish existing structures as needed. The 392 acres of reversionary Navy property automatically would revert to the Port upon operational closure in 1998. Conveyance to the Port of the 136 acres of nonreversionary Navy property would not occur under the No Action Alternative. Site contamination cleanup on FISCO would continue.

Under the No Action Alternative, the remaining 290 acres of non-Navy property would not be developed as part of the Vision 2000 Program. Existing railroad operations would continue, using both Southern Pacific and Union Pacific railyards, in their present configurations and locations. Burlington Northern-Santa Fe container traffic through Oakland Port facilities would continue to move via Highway I-80 to and from Richmond. Existing marine terminal operations also would continue.

2.1.2 Disposal of Nonreversionary Navy Property

Navy disposal is the federal action evaluated to determine the impacts from disposal of nonreversionary Navy property out of federal ownership. Under the disposal action, 136 acres of nonreversionary Navy property will be conveyed to the Port. Caretaker, cleanup, and leasing actions associated with Navy disposal of nonreversionary Navy property are discussed in Section 1.3. Federal disposal would precede implementing each of the Port Vision 2000 reuse alternatives.

2.2 PORT REUSE ALTERNATIVES (VISION 2000 PROGRAM)

2.2.1 Port of Oakland Vision 2000 Program Planning Process

The Vision 2000 Program is a schedule of phased improvements or development projects to modernize and expand the Port's facilities. The Port is an independent agency of the City of Oakland. Under the auspices of the Board of Port Commissioners, appointed by the mayor and confirmed by the city council, the Port is the public agency responsible for planning, developing, and administering Oakland's marine terminal facilities for waterborne commerce. The Port's goals for redevelopment of the FISCO site and surrounding property under the Vision 2000 Program are as follows:

- Increase productivity and improve efficiency of Port integrated intermodal services;
- Provide for the growth of railroad intermodal capacity;
- Generate revenue for its own operations and fund future growth to ensure the viability of the Port;
- Respond to continuing trends and requirements in maritime container shipping and overland transportation by constructing expanded modernized intermodal rail facilities and marine terminals (particularly by relocating rail facilities along the Oakland Inner Harbor off the waterfront to free up valuable property for marine terminal expansion);
- Ensure that proposed uses will, to the extent feasible, provide needed employment and open space opportunities; and

- Improve estuarine habitat.

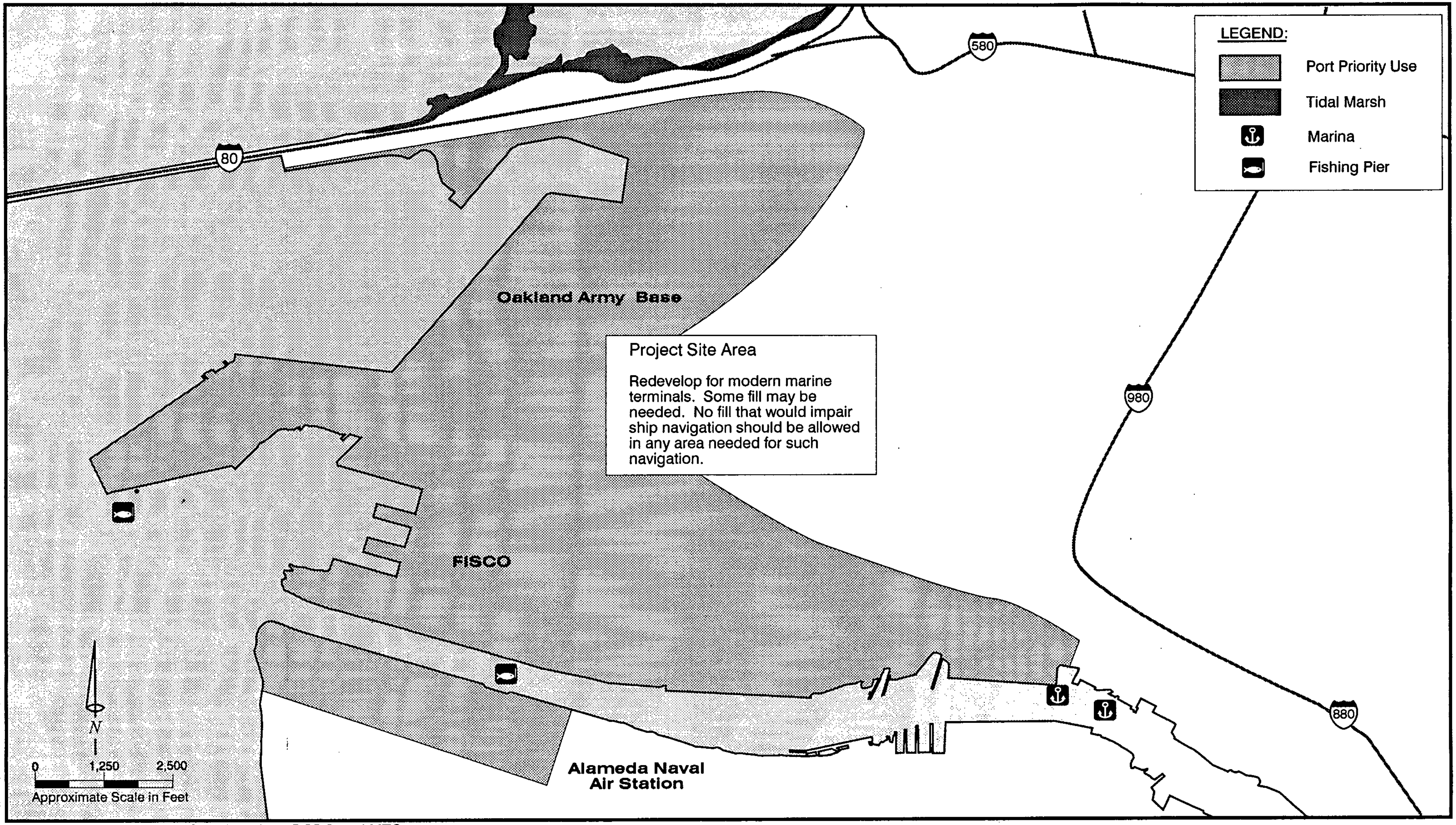
During the Vision 2000 Program planning process, the Port held several meetings in West Oakland, during which the public, including local neighborhood groups and interested citizens, had opportunities to comment on the program. All meetings were open to the public and local residents and interested individuals were notified in advance of each meeting by mail. These meetings have focused on familiarizing everyone with the site, recording community goals and concerns, sharing data compiled by the consultant team, and developing community-based land use concepts as part of the Vision 2000 Program. In particular, the Port conducted workshops that solicited the public's input on public access requirements and recreational needs as part of overall program development. All materials, including reports, videos, and other informational items, were made available to the public.

2.2.2 Development of Port Reuse Alternatives

FISCO is within the Port jurisdiction and is designated as a port priority use area in the April 1996 San Francisco Bay Conservation and Development Commission (BCDC) and Metropolitan Transportation Commission (MTC) Seaport Plan Update (Figure 2-1). Port priority use areas include the following land uses:

- Marine terminals and directly related ancillary activities, such as container freight stations;
- Transit sheds and other temporary storage;
- Ship repairing;
- Support transportation uses, including trucking and railroad yards;
- Freight forwarders;
- Government offices related to the port activity;
- Employee parking; and
- Marine services.

In conformance with this regional land use designation, the Port's Vision 2000 Program alternatives emphasize port-related activities, as opposed to other types of uses, such as residential. The development of the Vision 2000 Program project alternatives was predicated largely upon the requirements for effective maritime cargo transportation operations, including provision for enhanced intermodal railterminal capability. The term "intermodal" refers to the shipping of containers from origin to destination using a combination of marine, rail, and truck transportation. Development of an intermodal rail facility and marine terminals consistent with the Seaport Plan Update's port priority use designation restricts the range of alternatives that are feasible for evaluation.



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Pursuant to the April 1996 San Francisco BCDC and MTC Seaport Plan Update, Port designation uses include marine terminals and directly related activities such as container freight stations, transit sheds and storage, ship repairing, support transportation, and government offices related to port activity.

Source: BCDC 1969; BCDC 1996

Seaport and Bay Plan Designations on and near the Project Site

Fleet & Industrial Supply Center Oakland and Port of Oakland

Port of Oakland

Figure 2-1

Potential Vision 2000 Program project alternatives were developed by the Port, in consultation with local rail and marine terminal experts, to meet the Port's projected shipping demand and overall development goals. First, the Port defined Vision 2000 Program goals and objectives and then identified the project elements required to meet these goals and objectives. The three major project elements considered in this process were a rail terminal, marine terminals, and infrastructure to support proposed rail and marine terminals development. Different combinations of these three elements were considered during the alternatives definition process. These three elements were the building blocks used to develop preliminary alternatives.

The Port developed its alternatives in consideration of physical site opportunities and limitations (e.g., the ability to accommodate required rail infrastructure, nominal width and length of marine facilities); future land uses on and off the site, including the effect of potential railroad mergers; access and transportation corridors; and open space and recreation needs. The Vision 2000 Program project alternatives represent a range of development, varying from the most to the least extensive intermodal rail and marine facilities. The alternatives also were selected to provide a range of potential environmental impacts. They allow local and federal decision-makers, interested agencies, and the public to understand reuse choices and the potential environmental impacts of these choices.

2.2.3 Common Elements of Port Reuse Alternatives

The Vision 2000 Program alternatives have common elements focused on meeting Port goals. The combination of these elements allows the Port to increase productivity, to improve efficiency of integrated intermodal services, and to provide needed employment and open space opportunities. These common elements are discussed below.

- *Railroad Terminal.* The railroad terminal includes a proposed intermodal facility and its adjacent track and support facilities. The terminal will be served ultimately by one or a combination of Oakland's three transcontinental railroads— Southern Pacific, Union Pacific, and Burlington Northern-Santa Fe. (The Southern Pacific and Union Pacific Railroads have merged). The proposed railroad terminal is envisioned as one large centrally located facility that would be more efficient than smaller dispersed terminals.

- *Marine Terminals.* To meet anticipated growth in Pacific Rim cargo trade and to provide a more efficient system of intermodal transport to and from the continental United States, the Port is expanding and modernizing to maintain and upgrade marine terminal facilities. The Vision 2000 Program identifies significant growth in new marine container terminals to service Port tenants. Two to five new terminal berths are proposed as part of the Port's reuse alternatives.

- *Public Waterfront Access and Marine Habitat Enhancement Area.* Developing the proposed rail and marine terminal facilities could result in the loss of Middle Harbor Park, an approximate one-acre park that provides limited public access to the waterfront along the Oakland Inner Harbor via Middle Harbor Road and Ferro Street. The Port, with input from local community groups and neighborhood organizations, developed conceptual plans for a public waterfront access and marine habitat enhancement area in the Oakland Middle Harbor. The proposed public access component would range in size from between 14 to 39 acres. The purpose of this area would be to substantially increase the amount of usable public recreational and open space opportunities in the area and would therefore more than mitigate the potential loss of shoreline access along the Oakland Inner Harbor. This area would also be used to implement habitat and historic mitigation plans for potential impacts to these resources.

2.2.4 Alternatives Eliminated from Detailed Review

The alternatives development process for the Port's Vision 2000 Program considered development options both off and on the FISCO property. These off- and on-site alternatives are described in more detail below.

2.2.4.1 Preliminary Off-site Alternative

In considering off-site alternatives that do not use FISCO property, the Port identified the eastern portion of the Oakland Army Base, located north of FISCO. Approximately 200 acres in the eastern half of the Army base, along the western edge of the Southern Pacific's Desert Yard, extending from 7th Street north to the I-80/I-580 distribution structure, initially were considered as a potential off-site location for rail terminal development. This location would provide good rail access and would leave all of FISCO available for marine terminal development. However, the Oakland Army Base was determined to be infeasible as an alternative site because the base is not within the Port's jurisdiction and the proposed rail terminal footprint would not meet the project's optimum engineering criteria. For example, this site would be too small and too short to accommodate expected train volumes and track lengths. In addition, the Grand Avenue viaduct would bisect the terminal footprint and, therefore, would cause potential overhead clearance problems (Port of Oakland 1995b).

There were no other off-site locations that could feasibly meet the minimum size thresholds needed for cargo handling and transfer and that could be reasonably developed, rehabilitated, or modified for an intermodal rail terminal. Thus, the proposed Vision 2000 Program project alternatives have been limited to variations of on-site designs rather than off-site locations.

2.2.4.2 Preliminary On-site Design Alternatives

The FISCO property provides the most readily available and underused acreage of significant size in the Port area for developing intermodal facilities. The alternatives development process for the Port's Vision 2000 Program produced eight preliminary alternatives that require use of FISCO. These alternatives were assessed with a number of operational, design, environmental, and institutional criteria developed and applied in an alternatives matrix for comparing, evaluating, and screening the eight preliminary alternatives. Some of the most important criteria included the following:

- Operational standards, such as the ultimate capacity to accommodate up to 660,000 lifts per year during the first phase of operations;

- Facility design standards, such as 10-degree maximum track curvature, train-length loading tracks, new storage/support tracks, and 1,500- to 2,000-foot deep marine terminals, which is the measured distance of the facility landward from the water's edge;

- Environmental criteria, such as minimizing the amount of fill; and

- Institutional arrangements, such as the assumption that the Southern Pacific/Union Pacific merger would occur.

The alternatives matrix identified which preliminary alternative satisfied the most criteria. The results of this screening process narrowed the list of eight preliminary alternatives to the four alternatives presented and evaluated in this EIS/EIR. Table 2-1 identifies the original eight reuse alternatives considered for the Vision 2000 Program and summarizes the results of the alternatives screening process.

Most of the eight preliminary alternatives identified in Table 2-1 satisfied the Port's operational and facility design standards required to operate an efficient joint intermodal terminal. However, one factor that influenced the selection of the four final alternatives was the unknown status of institutional arrangements among the three major railroad companies servicing the Port, as well as between these railroads and the Port. To evaluate all potential future railroad scenarios that could reasonably occur at the Port, the final selected alternatives had to address different potential rail configurations and locations among the three railroad companies.

Two of the four selected project alternatives assumed that the Southern Pacific and Union Pacific Railroads would not participate in the Vision 2000 project but would only service the Burlington Northern-Santa Fe Railroad (formerly known as the Atcheson Topeka-Santa Fe Railroad). The Atcheson Topeka-Santa Fe-1 alternative (referred to as the Minimum Marine/Minimum Rail Alternative in

Table 2-1
Preliminary Vision 2000 Program Alternatives

Preliminary Alternative	Rail Length (track feet)	Support Track Length (track feet)	Total Net Fill (acres)	Rail Service	Screening Results
Summit/Lynch[1]-1	47,907	76,703	37	Southern Pacific, Union Pacific, and Burlington Northern-Santa Fe	Maximum Marine/Maximum Rail Alternative
Reduced Fill-1	46,092	84,276	17	Southern Pacific and Union Pacific	Eliminated from further consideration
Reduced Fill-2	47,661	84,276	10	Southern Pacific and Union Pacific	Eliminated from further consideration
Reduced Fill-3	47,907	76,702	4	Southern Pacific and Union Pacific	Eliminated from further consideration
Atcheson Topeka-Santa Fe[2]-1	27,620	39,657	35	Burlington Northern-Santa Fe	Minimum Marine/Minimum Rail Alternative
Atcheson Topeka-Santa Fe-2	27,620	39,657	10	Burlington Northern-Santa Fe	Maximum Marine/Minimum Rail Alternative
No Net Fill-1	47,661	84,276	-14	Southern Pacific, Union Pacific, and Burlington Northern Santa Fe	Reduced Harbor Fill Alternative
No Net Fill-2	47,661	84,276	-35	Southern Pacific and Union Pacific	Eliminated from further consideration

[1]Summit/Lynch prepared the Port's Joint Intermodal Terminal Operational Analysis Report (Port of Oakland 1995a) and Operating Plan Report (Port of Oakland 1995b).
[2]Atcheson Topeka-Santa Fe Railroad is now referred to as Burlington Northern-Santa Fe.

Source: Port of Oakland, Vision 2000 Maritime Development Program/FISCO Reuse Plan Alternatives for Analysis. January 31, 1996.

this EIS/EIR) was selected because it was the only preliminary alternative that assumed that both Union Pacific and Southern Pacific operations would remain in their current configuration at their respective yards and would not participate in the project. The Atcheson Topeka-Santa Fe-2 alternative (referred to as the Maximum Marine/Minimum Rail Alternative in this EIS/EIR) was selected because it was the only preliminary alternative that assumed Union Pacific would abandon its existing West Oakland Intermodal Rail Terminal adjacent to the Inner Harbor Channel and that it would consolidate all of its intermodal and nonintermodal functions into Southern Pacific's West Oakland Yard.

Of the remaining six preliminary alternatives, Summit/Lynch-1 was selected (referred to in this EIS/EIR as the Maximum Marine/Maximum Rail Alternative) because it represents optimal rail and marine terminal operations that provide service to all three railroad companies. The process used for identifying and defining this alternative is documented in the Port's Joint Intermodal Terminal Operational Analysis Report (Port of Oakland 1995a) and Operating Plan Report (Port of Oakland 1995b). The No Net Fill-1 alternative (referred to in this EIS/EIR as the Reduced Harbor Fill Alternative) represents the only final alternative that would result in more fill removed than placed.

The Reduced Fill-1, 2, and 3 preliminary alternatives essentially were comprised of various combinations of the rail, channel, and marine terminals configurations represented in the project's Maximum Marine/Maximum Rail, Maximum Marine/Minimum Rail, and Reduced Harbor Fill Alternatives. These three preliminary alternatives consisted of similar marine and rail terminal configurations on FISCO, Southern Pacific, and Union Pacific properties. The total net fill among these three preliminary alternatives ranged from four acres (Reduced Fill-3) to 17 acres (Reduced Fill-1). Under the Reduced Fill-1 and 2 preliminary alternatives, support tracks would be located on both Oakland Army Base and Southern Pacific/FISCO property, whereas all support tracks would be accommodated at the Oakland Army Base under the Reduced Fill-3 preliminary alternative.

In comparing potential impacts, there were only minor differences among these three preliminary alternatives. With respect to fill impacts, the Maximum Marine/Maximum Rail and Reduced Harbor Fill Alternatives represent the project's worst and best case impact scenarios, respectively; therefore, they capture the range of potential fill impacts, such as water quality and biological resource degradation, envisioned under the three reduced fill preliminary alternatives. Considering impacts on FISCO, Southern Pacific, and Union Pacific properties, the Maximum Marine/Maximum Rail and Reduced Harbor Fill Alternatives both represent maximum usage of these parcels; therefore, impacts would be similar to those envisioned under these three reduced fill alternatives.

Through the preliminary alternatives screening process, it was considered potentially infeasible to construct support tracks on the adjacent Oakland Army Base property. However, this project component is still under consideration as part of the Maximum Marine/Minimum Rail Alternative, albeit at a smaller scale than originally envisioned under the Reduced Fill-3 preliminary alternative. For the purposes of this programmatic EIS/EIR, the Port determined that the Maximum Marine/Maximum Rail, Maximum Marine/Minimum Rail, and Reduced Harbor Fill alternatives would best represent the range of potential impacts caused by any one of these three preliminary alternatives; therefore, they were eliminated from further study as individual alternatives.

The No Net Fill-2 preliminary alternative was comprised of the same rail configuration used for the Reduced Harbor Fill Alternative but with more extensive widening of the Oakland Inner Harbor. This widening effectively would eliminate the Western Pacific mole (a critical element in three of the four public access components under consideration) and would result in very costly excavation and uncertain disposal of over 10 million cubic yards of soil. Furthermore, a hydrodynamic analysis of the effects of passing vessels on ships berthed at the new marine terminals indicated diminishing benefits with additional widening beyond that shown for the Reduced Harbor Fill Alternative. For these reasons, the No Net Fill-2 alternative was eliminated from further study.

2.2.5 Geographic Components of the Port Reuse Alternatives

The reuse alternatives would consist of a combination of nine areas, referred to as Areas A through I (Figure 2-2) (see also Section 3.1.1). The areas within the project site would total up to 818 acres and would include the following:

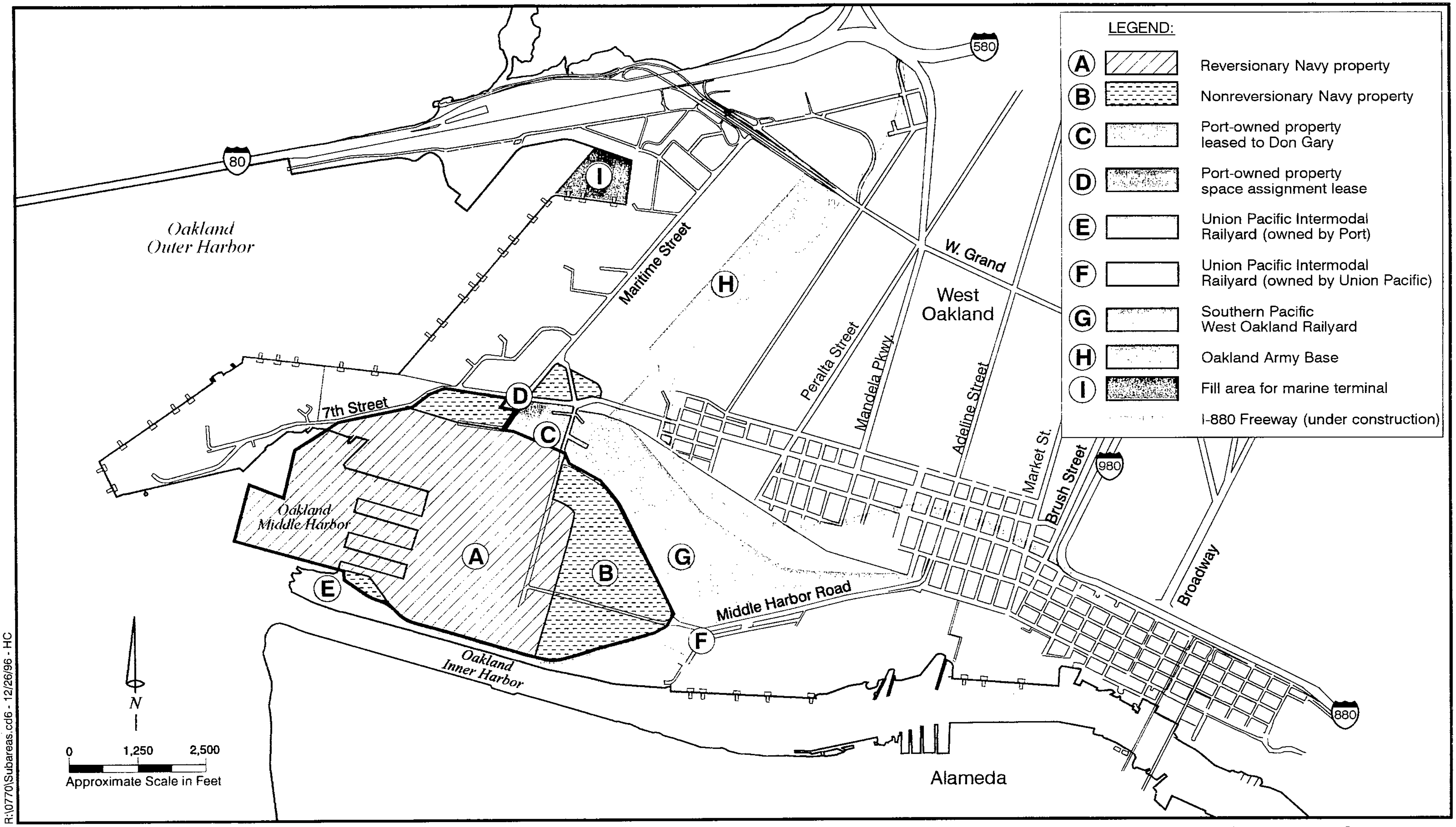
Area A consists of 392 acres and is the reversionary Navy property at FISCO. This area is bounded by the Oakland Middle Harbor to the west, 7th Street, nonreversionary Navy property and Don Gary Investments, Ltd. leased property to the north, nonreversionary Navy property and 6th Street to the east, and the Union Pacific Intermodal Railyard to the south. This property is owned by the Navy and is leased, or will be leased in the future, to the Port of Oakland.

Area B is 136 acres and consists of the nonreversionary Navy property at FISCO. Area B is bounded by reversionary Navy property and 6th Street to the west, Middle Harbor Road to the north and east, and the Union Pacific Intermodal Railyard to the south. This property is owned by the Navy and is leased, or will be leased in the future, to the Port of Oakland.

Area C is nine acres and is owned by the Port and leased to Don Gary Investments, Ltd. Area C is located near the intersection of 7th and Maritime Streets and is bordered by 7th Street and other Port property to the north, the Southern Pacific property to the east, and FISCO to the south and west.

Area D is five acres of another property owned by the Port and leased to various tenants on a short-term space assignment basis. Area D is located south of 7th Street and is transversed by the Maritime Street Overpass.

Area E is 90 acres and is owned by the Port and leased to the Union Pacific Railroad. Area E is used as an intermodal railyard and is bordered by the Oakland Middle Harbor to the west, FISCO to the north, the Port's Middle Harbor Terminal to the east, and the Oakland Inner Harbor to the south.



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The project site has been subdivided into areas A through I for the purpose of evaluating alternatives.

Proposed Project Site Subareas

Source: Port of Oakland 1996

Fleet & Industrial Supply Center Oakland
and Port of Oakland

Port of Oakland

Figure 2-2

Area F is 15 acres and is also a part of the Union Pacific Intermodal Railyard that is owned by Union Pacific. Area F is located in the southeast corner of the intermodal railyard and is bordered by FISCO to the west, Southern Pacific property to the north, and the Middle Harbor Terminal to the east.

Area G is 133 acres and is a portion of the Southern Pacific West Oakland Railyard, predominately Southern Pacific's intermodal facility. Area G is bounded by Middle Harbor Road to the south and west and other Southern Pacific property to the north and east.

Area H is 11 acres and is located northeast of the FISCO property on a portion of the Oakland Army Base. The Navy has no disposal authority over the Oakland Army Base property and any decision allowing Port use of this 11-acre area would require separate Army approval. The northern third of this area contains a small rail classification yard, knows as the US Army Knight Yard. Area H runs southwest to northeast along railroad tracks from the Southern Pacific site up to Oakland Army Base warehouses near West Grand Avenue.

Area I occupies approximately 27 acres of submerged land located at the eastern end of the Oakland Outer Harbor in front of the Bay Bridge Terminal. Approximately half the area is owned by the Port, while the other half is owned by the Oakland Army Base. The Navy has no disposal authority over the Oakland Army Base property and any decision allowing Port use of this land would require separate Army approval.

A comparison of the various acreages from these nine areas needed for the four Port reuse alternatives is presented in Table 2-2.

Table 2-2
Acreage Needed from Project Areas

Area	Maximum Marine/Maximum Rail Alternative (acres)	Minimum Marine/Minimum Rail Alternative (acres)	Maximum Marine/Minimum Rail Alternative (acres)	Reduced Harbor Fill Alternative (acres)
Area A	392	267	392	392
Area B	136	62	136	136
Area C	9	9	9	9
Area D	5	5	5	5
Area E	90	0	90	90
Area F	15	0	15	15
Area G	133	0	0	133
Area H	0	0	11	0
Area I	0	27	0	0
Other*	66	32	61	42
TOTAL	846	402	719	822

*Other areas include submerged land in the Middle Harbor outside the reversionary Navy property boundary.

2.2.6 Description of Port Reuse Alternatives

Four Vision 2000 Program alternatives are analyzed in this EIS/EIR. The alternatives vary in the intensity of intermodal rail and marine facilities development on the nine geographic areas proposed for development. Each alternative is evaluated separately and at the same level of analysis. The Port has not completed specific design plans for each of the reuse alternatives. The following description of alternatives is based on conceptual development plans for the proposed intermodal facility.

Table 2-3 provides an overview of facilities and other operations features of the proposed rail and marine terminals for each reuse alternative. Table 2-4 identifies marine habitat enhancement, historic preservation, recreation, public access, roads and parking, and community facility activities proposed in the Middle Harbor area for four different potential public access components. The activities identified in Table 2-4 represent the broadest array of ideas developed to date through the public involvement process. This full spectrum of activities has been organized into four conceptual public access components. For analytical and illustrative purposes only, each public access component has been evaluated in the context of one of the four project alternatives analyzed in this document. However, the four public access components defined herein are not finalized, and modifications to their design through further public input, as well as feedback from applicable resource and permitting agencies, are planned and encouraged as part of the Port's public involvement efforts. This EIS/EIR evaluates impacts associated with each of the Port's reuse alternatives, assuming maximum rail and marine terminal operating conditions in 2010.

2.2.6.1 Maximum Marine Terminal/Maximum Rail Terminal Alternative

The emphasis of the Maximum Marine/Maximum Rail Alternative (Figure 2-3) would be maximum development of a joint intermodal rail terminal to serve Union Pacific, Southern Pacific, and Burlington Northern-Santa Fe Railroads, as well as new marine terminals and ancillary facilities. The proposed rail terminal would occupy approximately 380 acres on portions of Areas A, B, and G, and on all of Areas C and D. Grade-separated access to the new rail terminal at the main gate would route truck traffic over rail tracks and 7th Street, without impeding traffic along 7th Street. Alternative A assumes that Union Pacific would abandon its existing railyard along the Oakland Inner Harbor (Areas E and F) to accommodate proposed marine terminals. Direct employment projected for on-site marine and rail terminal operations would be approximately 2,920 jobs (not including other Port direct jobs in the Port's jurisdiction - see Section 5.1.2).

This alternative would involve construction of five 1,200-foot berths and marine terminals along the Oakland Inner Harbor (parts of Areas A, B, and E), covering approximately 260 acres. This level of proposed development would require relocation of the Harbor Transportation Center and Middle Harbor Road.

Table 2-3
Alternatives Summary

	Maximum Marine Terminal/Maximum Rail Terminal Alternative	Minimum Marine Terminal/Minimum Rail Terminal Alternative	Maximum Marine Terminal/Minimum Rail Terminal Alternative	Reduced Harbor Fill Alternative
RAILROAD TERMINAL				
Size (acres)	380 +/-	190 +/-	190 +/-	320 +/-
Rail Service	Southern Pacific, Union Pacific, and Burlington Northern-Santa Fe	Burlington Northern-Santa Fe[1]	Burlington Northern-Santa Fe[1]	Southern Pacific, Union Pacific, and Burlington Northern-Santa Fe
Capacity (lifts/year)[2]	1.46 million	0.49 million	0.65 million	1.36 million
Loading tracks				
Number of tracks	8	6	8	8
Total track feet	46,275	18,970	25,050	43,040
Number of car spots	151	62	81	140
Train arrivals/departures year 2010 (number/day)[3,4]				
Peak	32	11	14	27
Average	27	9	12	23
Support tracks				
Oakland Army Base				
Number of tracks	NA	NA	9[5]	NA
Total track feet	NA	NA	39,657	NA
Acres	NA	NA	11	NA
UP/SP/FISCO				
Number of tracks	NA[6]	10	7	23
Total track feet	NA	38,000	32,000	83,600
Acres	NA	19	12	32
Parking slots				
Center-row	3,823	1,189	1,775	3,141
Satellite	1,501	827	827	1,301
Chassis slots	2,064	1,000	1,000	2,064
MARINE TERMINALS				
Location	Inner Harbor	Middle/Outer Harbors	Inner Harbor	Inner Harbor
Size (acres)	260 +/-	100/27 +/-	290 +/-	275 +/-
Depth (feet)[7]	1,890	2,000/1,400	1,302-2,578	1,726-2,313
Number of berths	5	2	5	5
Berth length (feet)[8]	1,200	1,200	1,200	1,200
Increase Inner Harbor width?[9]	no	no	no	yes (730 ft +/-)
PUBLIC WATERFRONT ACCESS and MARINE HABITAT ENHANCEMENT AREA				
Public waterfront access (acres)	29	14	39	31
Marine Habitat Enhancement (acres)	177	71	200	196
Total	206	85	239	227
HARBOR TRANSPORTATION CENTER				
Relocate off-site?	yes	no	yes	yes
ON-SITE INFRASTRUCTURE				
Relocate Middle Harbor Road?	yes	no	no	yes
Grade-separated access at Main Gate?	yes	yes	yes	yes

[1]Under this alternative, Southern Pacific and Union Pacific rail service would be provided adjacent to the proposed rail terminal from the railroads' existing facilities.
[2]Considered to be "constrained" capacities; the term "constrained" is defined as near-capacity, taking all readily available room and resources, yet still relatively efficient. The term "lift" refers to movement of a single unit of cargo on or off a particular intermodal facility, such as marine vessels or railcars.
[3]Considered to be "constrained" capacities; numbers represent total number of trains entering or leaving the new rail terminal yard.
4The Minimum Marine/Minimum Rail and Maximum Marine/Minimum Rail Alternatives do not include intermodal trains generated by existing Union Pacific and Southern Pacific facilities.
[5]Another support track storage option is to develop all of it on FISCO property.
[6]All intermodal rail equipment storage will be in the Southern Pacific West Oakland and East Oakland yards. Non-intermodal rail equipment storage to be relocated to other satellite locations in the Bay Area or northern California; the exact location will be determined during project-level environmental review.
[7]Marine terminal depth is the measured distance of the terminal facility landward from the water's edge.
[8]Berth length is the linear distance measured for each berth along the waterfront.
[9]Channel widening is evaluated for the Reduced Harbor Fill Alternative but could also occur under the Maximum Marine/Maximum Rail and Maximum Marine/Minimum Rail Alternatives.

Table 2-3
Alternatives Summary *(continued)*

	Maximum Marine Terminal/Maximum Rail Terminal Alternative	Minimum Marine Terminal/Minimum Rail Terminal Alternative	Maximum Marine Terminal/Minimum Rail Terminal Alternative	Reduced Harbor Fill Alternative
SOLID FILL: JIT (acres)				
Solid Fill	32	0	0	0
Solid Cut	0	0	0	0
Net Solid[10]	32	0	0	0
SOLID FILL: MARINE TERMINAL (acres)				
Solid Fill	19	60	32	32
Solid Cut	(-17)	0	(-17)	(-44)
Net Solid[10]	2	60	15	(-12)
SOLID FILL: PUBLIC ACCESS (acres)				
Solid Fill	8	0	3	3
Solid Cut	0	0	0	0
Net Solid[10]	8	0	3	3
TOTAL SOLID FILL (acres)				
Total fill placed	59	60	35	35
Total fill removed	(-17)	(0)	(-17)	(-44)
Total net solid fill	42	60	18	(-9)
PILE SUPPORTED FILL: JIT (acres)				
Pile fill	0	0	0	0
Pile cut	0	0	0	0
Net pile	0	0	0	0
PILE SUPPORTED FILL: MARINE TERMINALS (acres)				
Pile fill	14	6	14	14
Pile cut	0	(-29)	(-22)	(-22)
Net pile	14	(-23)	(-8)	(-8)
PILE SUPPORTED FILL: PUBLIC ACCESS (acres)				
Pile fill	0	0	0	0
Pile cut	(-22)	0	0	0
Net pile	(-22)	0	0	0
TOTAL PILE SUPPORTED FILL (acres)				
Total pile fill placed	14	6	14	14
Total pile fill removed	(-22)	(-29)	(-22)	(-22)
Total net pile fill	(-8)	(-23)	(-8)	(-8)
TOTAL SUBTIDAL HABITAT ENHANCEMENT (acres)	177	71	200	196

[10]Amount of placed solid fill does not include an estimate of fill to raise the lower portions of the site to an elevation of about 12 feet mean sea level.

NA = Not applicable

Source: Port of Oakland 1996c

Table 2-4
Vision 2000 Public Access and Habitat Enhancement Components[1]
Possible Marine Habitat Enhancement, Historic Preservation, Recreation, Public Access, Roads and Parking, and Community Facility Activities at the Oakland Middle Harbor

	Maximum Marine/Maximum Rail Alternative Public Access and Habitat Enhancement Component 1	Minimum Marine/Minimum Rail Alternative Public Access and Habitat Enhancement Component 2	Maximum Marine/Minimum Rail Alternative Public Access and Habitat Enhancement Component 3	Reduced Harbor Fill Alternative Public Access and Habitat Enhancement Component 4
Marine Habitat Enhancement				
Upland foraging	√	√	√	√
Eelgrass beds	√	√	√	√
Islands	√		√	√
Intertidal zone	√		√	√
Subtidal zone (includes rocky reefs)	√	√	√	√
Deep holes and channels	√	√	√	√
Historic Preservation				
Relocation/reconstruction of one Officers quarters	√		√	√
Preservation of training wall	√			
Relocation of training wall facers			√	√
Reuse of facing pavers for history diorama			√	√
Recreation				
Spectator sports (e.g., softball, baseball)	√	√	√	√
Multi-purpose sports field	√		√	√
Informal recreation area	√	√	√	√
Nature study area	√		√	√
Beach access	√	√	√	√
Marina	√			
Roller-blading, skateboarding, dancing			√	
Public Access				
Multi-purpose trails	√	√	√	√
Promenades		√		
Roads and Parking				
Roadways	√		√	
Parking	√	√	√	√
Parking provision along roadways	√		√	
Specialized stalls for boat trailers	√			
Community Facilities				
Restaurants, gift shop		√	√	√
Snack bar or cafe, exhibit hall	√	√	√	√
Ceremonial event reservations	√		√	√
Snack bar, bait shop, marina service facilities	√	√	√	√
Restrooms	√	√	√	√

Notes:
[1] This table presents a list of possible (but not definitive) activities and enhancements that could be developed at the Oakland Middle Harbor.
Source: Port of Oakland 1996h.

Demolition and site preparation would be required prior to the construction of proposed facilities. The Port is exploring recycling/reuse of construction and building debris either on- or off-site.

The Maximum Marine/Maximum Rail Alternative also includes development of an approximately 206-acre public waterfront access and marine habitat enhancement area in the Oakland Middle Harbor referred to as Public Access and Habitat Enhancement Component 1 (Figure 2-4). Approximately 29 acres would be available for public access along the shoreline and at the Western Pacific mole, while the remaining 177 acres would be dedicated to habitat enhancement.

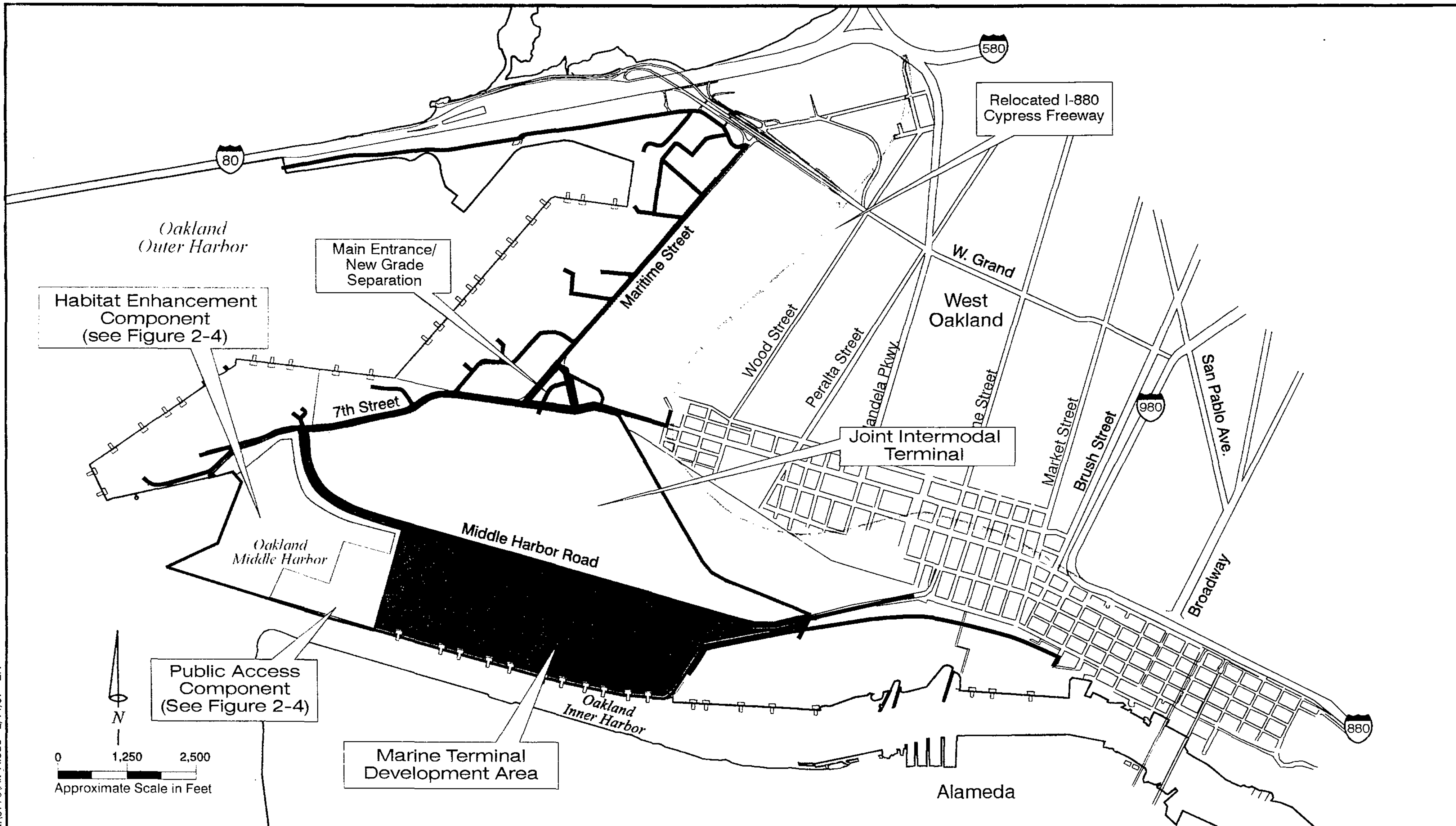
This development would provide public access for pedestrians, bicyclists, and vehicles along the entire perimeter of the Middle Harbor and would include areas for spectator sports, informal recreation, nature study, and a marina. Habitat creation and restoration would be developed along the northern and southern perimeters of Middle Harbor. Parking also would be provided to accommodate more than 400 vehicles.

Under the Maximum Marine/Maximum Rail Alternative, approximately 17 acres of fill would be removed from along the Oakland Inner Harbor, and about 22 acres of covered fill (i.e., pile-supported fill over water) would be removed from the Oakland Middle Harbor. Placed fill would include hard materials, primarily in the Oakland Middle Harbor for marine and rail terminal development, and fill over water, such as for the proposed marine terminal berths in the Oakland Inner Harbor. For this alternative, the net total amount of solid fill would increase by approximately 42 acres and the net total amount of pile-supported fill would be reduced by about eight acres.

Subtidal fill would be placed in the Oakland Middle Harbor to raise the bottom to an average depth of about minus five to six feet below mean lower low water (MLLW) to allow for possible subtidal marine habitat enhancement, such as eelgrass habitat. See Chapter 5, Biological Resources, for an expanded discussion of the marine habitat enhancement area proposed for each reuse alternative.

2.2.6.2 Minimum Marine Terminal/Minimum Rail Terminal Alternative

The Minimum Marine/Minimum Rail Alternative (Figure 2-5) would emphasize development of approximately 190 acres of new rail terminal on parts of Areas A and B and all of Areas C and D to serve the Burlington Northern-Santa Fe Railroad. Grade-separated access at the main gate would route truck traffic over rail tracks and 7th Street into the rail terminal. This alternative assumes that the present Union Pacific intermodal operations (Areas E and F) remain on the waterfront property it currently leases from the Port along the Oakland Inner Harbor and that the Southern Pacific operations (Area G) remain in their current configuration and location. Direct employment projected for on-site marine and rail terminal operations would be approximately 2,460 jobs.



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This alternative includes development of a 380-acre intermodal rail terminal, 260-acre marine terminal, 29 acres of public access, and 177 acres of habitat enhancement in the Oakland Middle Harbor.

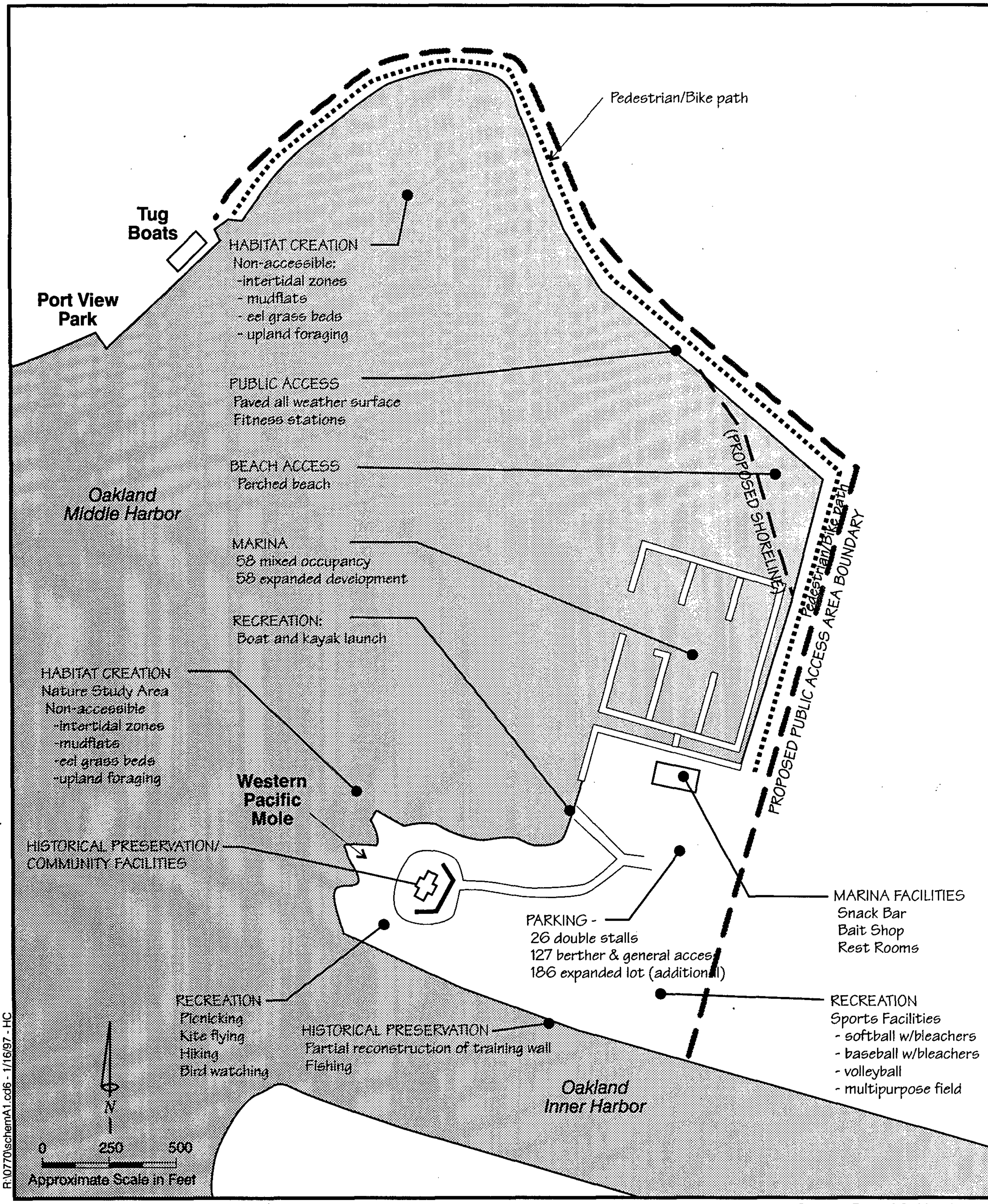
Maximum Marine Terminal/ Maximum Rail Terminal Alternative

Source: Port of Oakland 1996

Fleet & Industrial Supply Center Oakland
and Port of Oakland

Port of Oakland

Figure 2-3



In Component 1, 177 acres will be submerged while 29 acres will be on land. Features of this component depend on community and resource agency input, and may be associated with any of the alternatives.

Source: Port of Oakland 1996

Maximum Marine Terminal/ Maximum Rail Terminal Alternative Public Access and Habitat Enhancement Component 1

Fleet & Industrial Supply Center Oakland
and Port of Oakland
Figure 2-4

Port of Oakland

This alternative also would involve developing an approximate 100-acre marine terminal in the Oakland Middle Harbor (parts of Areas A and B), along with a channel and turning basin. In addition, new marine terminal uses would be constructed on approximately 27 acres in the Oakland Outer Harbor on Port and Oakland Army Base property (Area I). The Navy has no disposal authority over the Oakland Army Base property and any decision allowing Port use of this land would require separate Army approval.

Demolition and site preparation would be required prior to the construction of proposed facilities. The Port is exploring recycling/reuse of construction and building debris either on-site or off-site.

The Minimum Marine/Minimum Rail Alternative also includes development of an approximately 85-acre public waterfront access and marine habitat enhancement area in the northern portion of the Oakland Middle Harbor referred to as Public Access and Habitat Enhancement Component 2 (Figure 2-6). Approximately 14 acres would be available for public access at Point Arnold, while the remaining 71 acres would be dedicated to habitat enhancement.

This development would provide public access along the northern perimeter of the Middle Harbor and would include areas for recreational sports facilities, such as baseball and softball, areas for passive recreation such as picnicking, and a promenade along Point Arnold. Habitat creation and restoration would be developed along the northern edge of Middle Harbor (see Chapter 5, Biological Resources), and parking would be provided to accommodate approximately 250 vehicles.

Under the Minimum Marine/Minimum Rail Alternative, about 60 acres of net fill would be placed in portions of the Oakland Middle Harbor and in Area I of the Oakland Outer Harbor to construct proposed marine terminals. Approximately 29 acres of pile-supported fill would be removed from the Middle and Outer Harbors (e.g., Navy Piers 4 and 5) and replaced with two new berths. For this alternative, the net total amount of solid fill would increase by approximately 60 acres and the net total amount of pile-supported fill would be reduced by about 23 acres.

2.2.6.3 Maximum Marine Terminal/Minimum Rail Terminal Alternative

The Maximum Marine/Minimum Rail Alternative (Figure 2-7) would maximize marine terminal development along the Oakland Inner Harbor and would involve development of an approximately 190-acre new railroad intermodal terminal, similar to the Minimum Marine/Minimum Rail Alternative, to serve Burlington Northern-Santa Fe on parts of Areas A and B and on all of Areas C and D. Support tracks would be located on a portion of the Oakland Army Base (Area H). The Navy has no disposal authority over the Oakland Army Base property and any decision allowing Port use of this 11-acre area would require separate Army approval.

Grade-separated access to the new rail terminal at the main gate would route truck traffic over rail tracks and 7th Street, without impeding traffic along 7th Street. The Maximum Marine/Maximum Rail Alternative assumes that Union Pacific would consolidate all of its current intermodal operations on Areas E and F into Southern Pacific's facilities. Direct employment projected for on-site marine and rail terminal operations would be approximately 3,085 jobs.

The new marine terminals would occupy about 290 acres along the Oakland Inner Harbor (parts of Areas A, B, E, and F) and would include five new 1,200-foot berths. This level of marine terminal development would require relocation of the Harbor Transportation Center. Demolition and site preparation would be required prior to the construction of proposed facilities. The Port is exploring recycling/reuse of construction and building debris either on- or off-site.

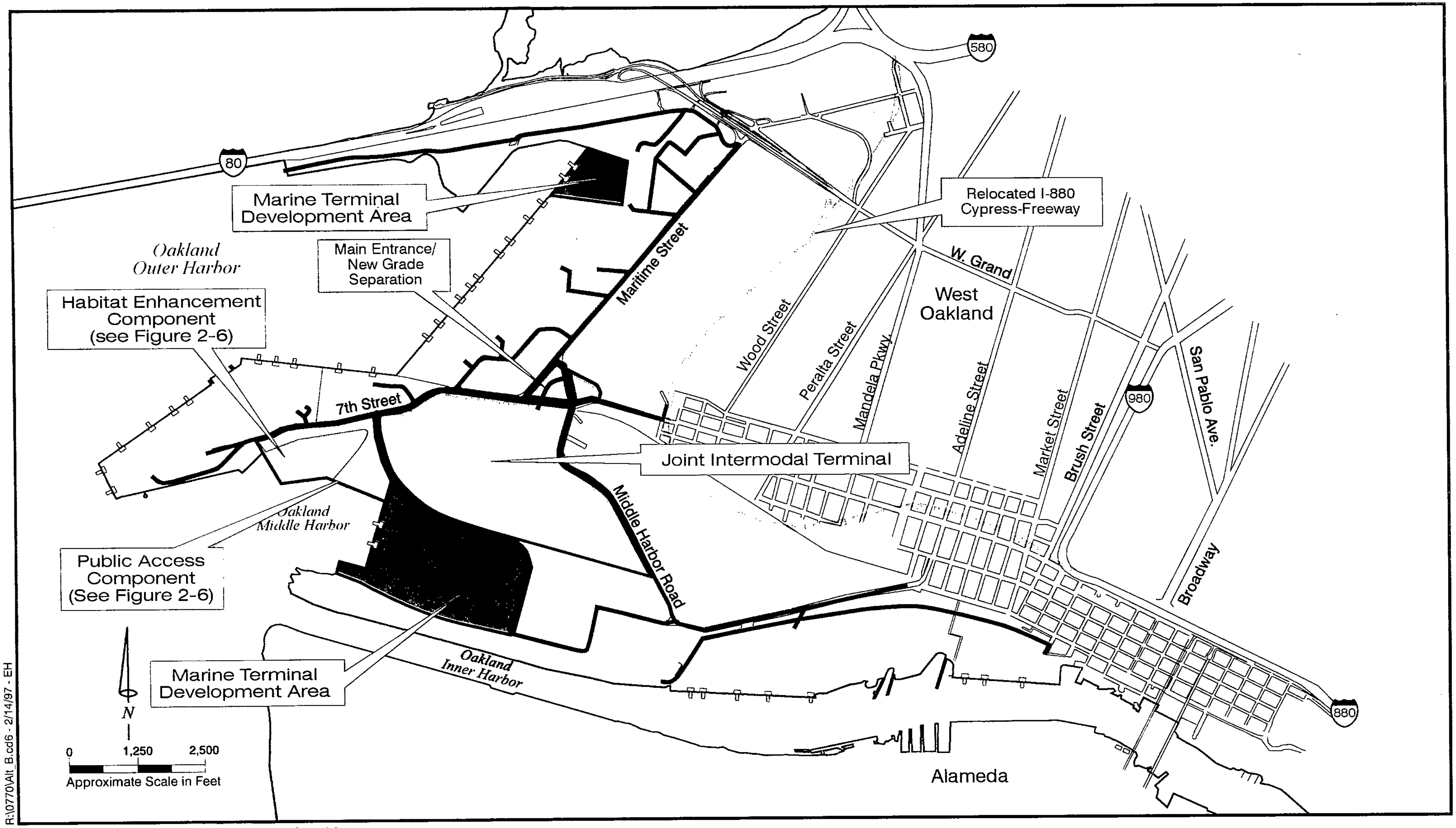
The Maximum Marine/Minimum Rail Alternative would also include development of an approximately 239-acre public waterfront access and marine habitat enhancement area in the Oakland Middle Harbor referred to as Public Access and Habitat Enhancement Component 3 (Figure 2-8). Approximately 39 acres would be available for public access along the shoreline and at Point Arnold and the Western Pacific mole, while the remaining 200 acres would be dedicated to habitat enhancement.

This development would provide public access along the entire perimeter of the Middle Harbor and would include areas for spectator sports and informal recreation at the Western Pacific mole and Point Arnold. Habitat creation and restoration would be developed along the northern and eastern perimeters of Middle Harbor (see Chapter 5, Biological Resources). Parking would be provided to accommodate approximately 270 vehicles.

Similar to the Maximum Marine/Maximum Rail Alternative, approximately 17 acres of hard fill would be removed from the Oakland Inner Harbor, and about 22 acres of covered fill (e.g., South Marginal Wharf and Navy Piers 4 and 5) would be removed in the Oakland Middle Harbor for marine terminal development. Placed fill would include hard materials, primarily in the Oakland Middle Harbor for marine terminal development, and covered fill, such as for the proposed marine terminal berths in the Oakland Inner Harbor. For this alternative, the net total amount of solid fill would increase by approximately 18 acres and the net total amount of pile-supported fill would be reduced by about eight acres.

2.2.6.4 Reduced Harbor Fill Alternative

The Reduced Harbor Fill Alternative (Figure 2-9) would develop approximately 320-acres of intermodal rail terminal on parts of Areas A, B, and G, and on all of Areas C and D. The new rail terminal would serve the Union Pacific, Southern Pacific, and Burlington Northern-Santa Fe Railroads. Grade-separated access to



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This alternative includes development of a 190-acre intermodal rail terminal, 100-acre and 27-acre marine terminals, 14 acres of public access, and 71 acres of habitat enhancement in the Oakland Middle Harbor.

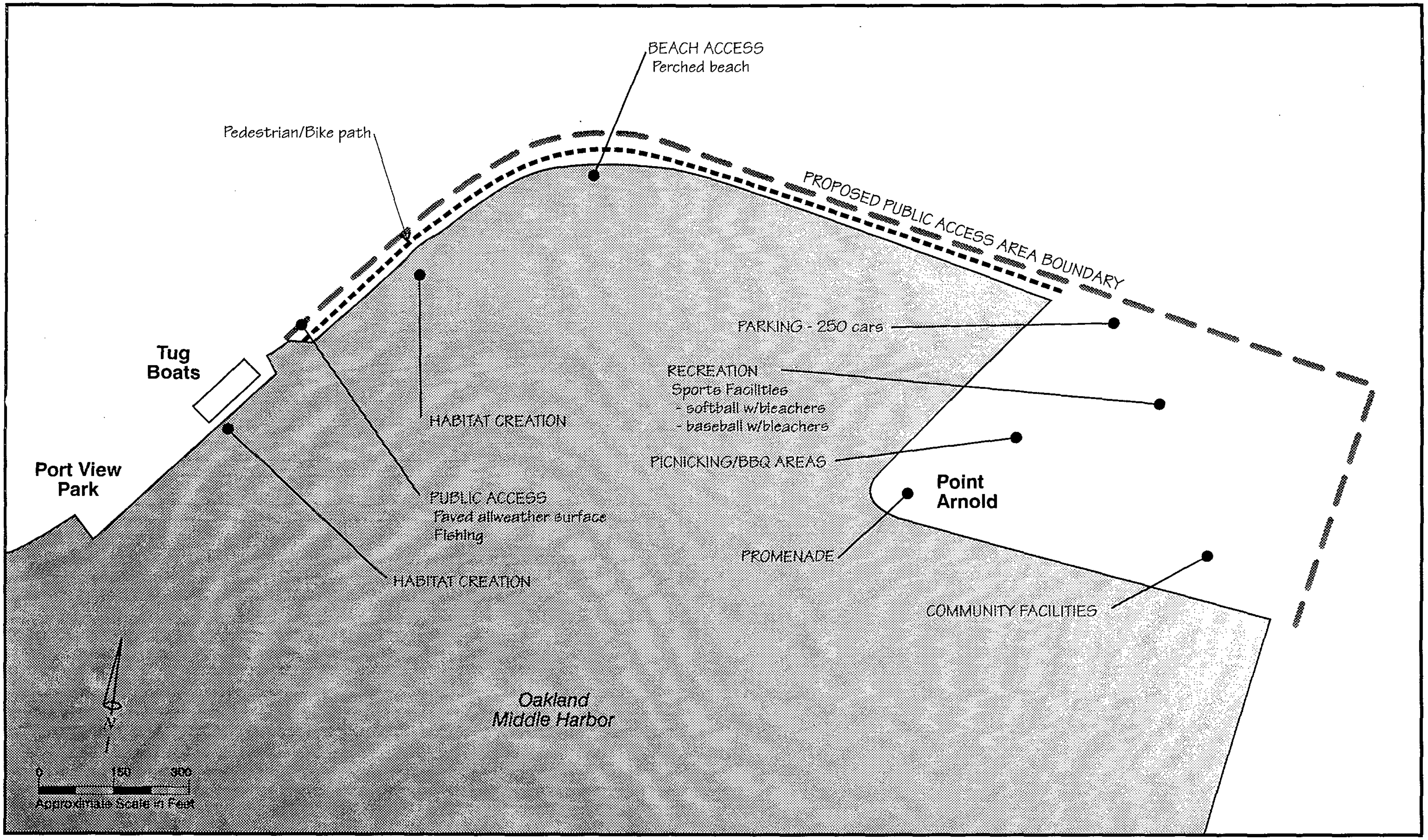
Source: Port of Oakland 1996

Minimum Marine Terminal/ Minimum Rail Terminal Alternative

Fleet & Industrial Supply Center Oakland
and Port of Oakland

Port of Oakland

Figure 2-5



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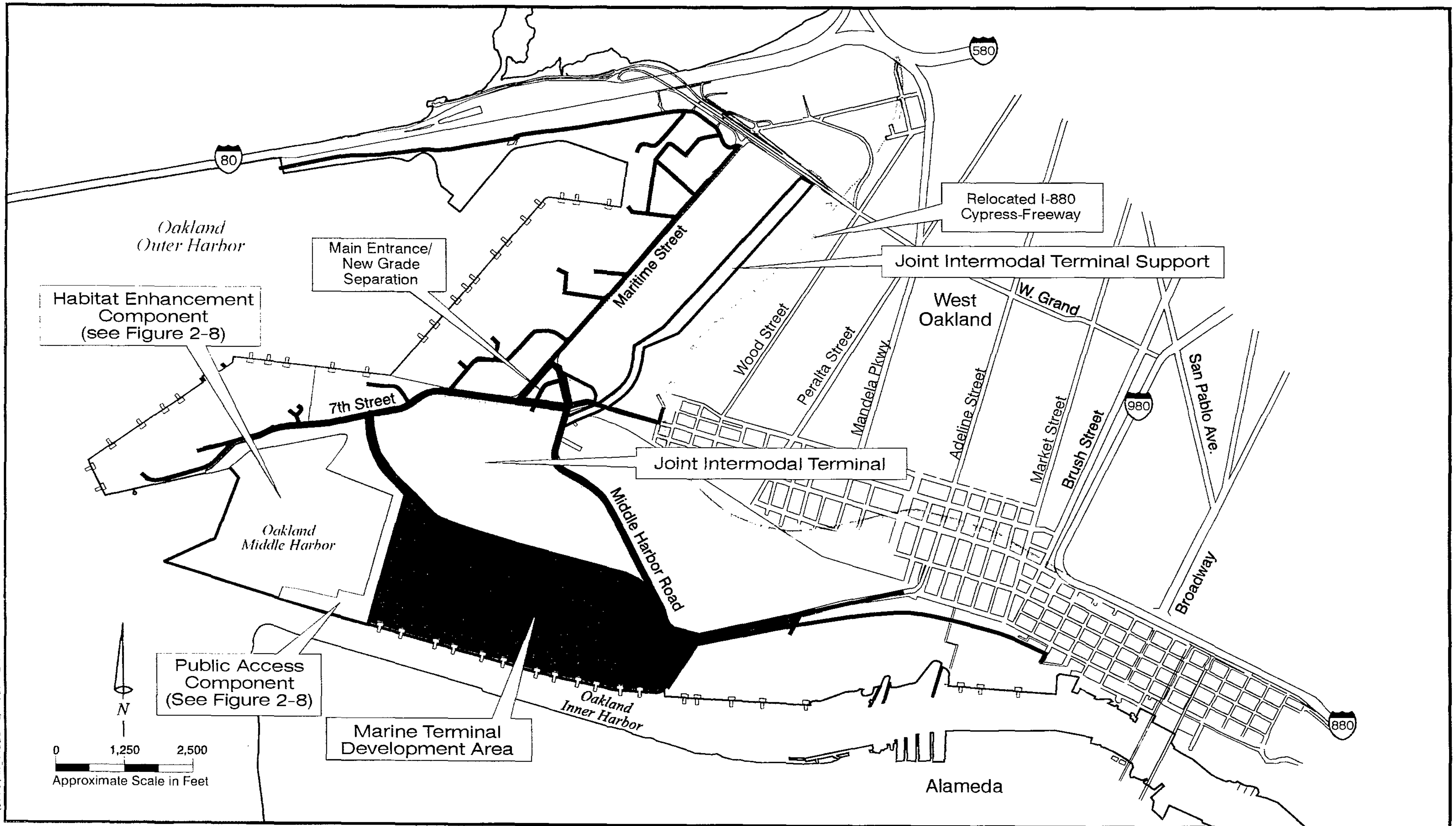
In Component 2, 71 acres will be submerged while 14 will be on land. Features of this component depend on community and resource agency input.

Source: Port of Oakland 1996

Minimum Marine Terminal/
Minimum Rail Terminal Alternative
Public Access and Habitat Enhancement Component 2

Fleet & Industrial Supply Center Oakland
and Port of Oakland
Figure 2-6

Port of Oakland



This alternative includes development of a 190-acre intermodal rail terminal, a 290-acre marine terminal, 39 acres of public access, and 200 acres of habitat enhancement in the Middle Harbor.

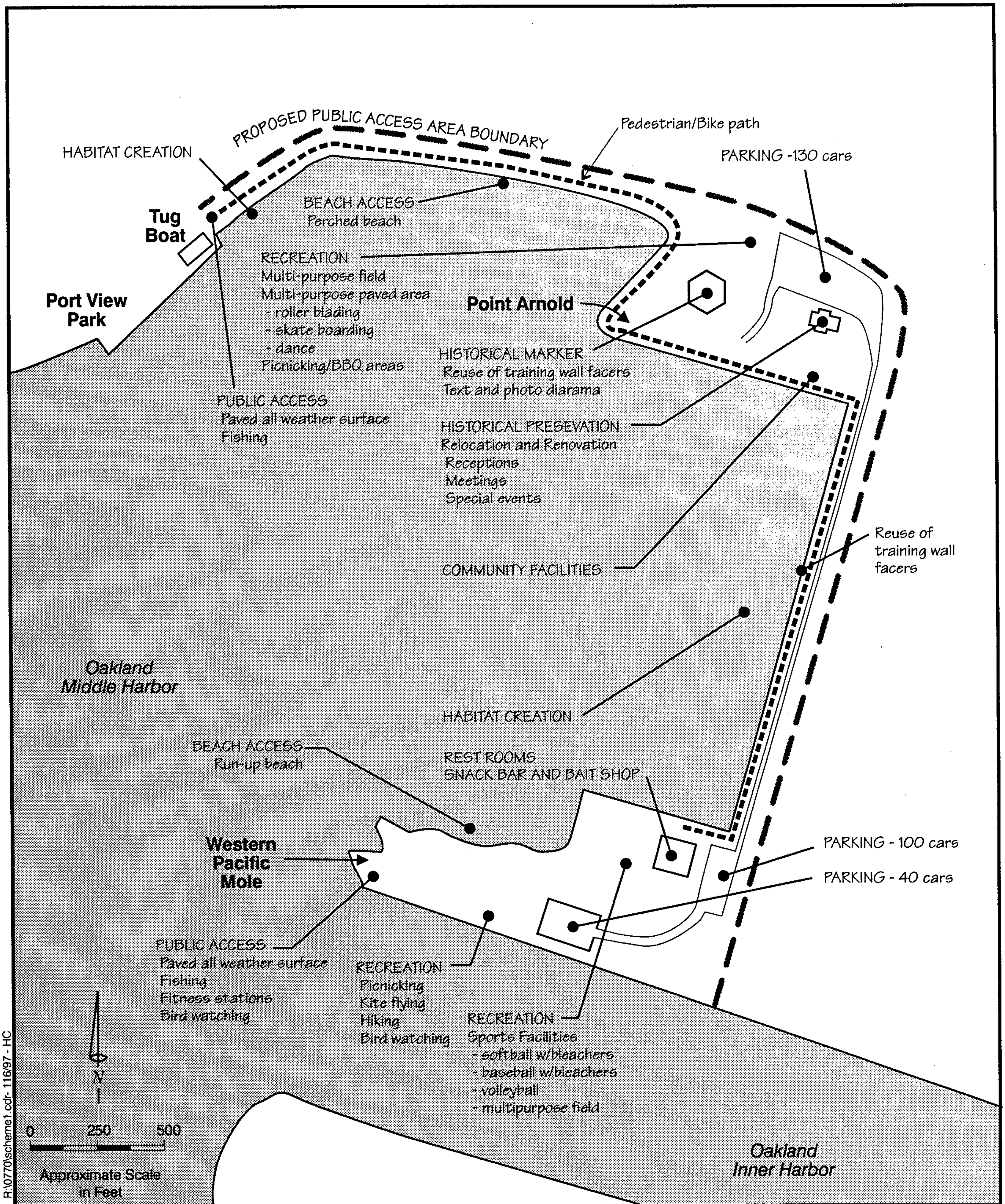
Maximum Marine Terminal/ Minimum Rail Terminal Alternative

Fleet & Industrial Supply Center Oakland and Port of Oakland

Source: Port of Oakland 1996

Port of Oakland

Figure 2-7



In Component 3, 200 acres will be submerged while 39 acres will be on land. Features of this component depend on community and resource agency input, and may be associated with any of the alternatives.

Source: Port of Oakland 1996

Maximum Marine Teminal/ Minimum Rail Terminal Alternative Public Access and Habitat Enhancement Component 3

Fleet & Industrial Supply Center Oakland
and Port of Oakland
Figure 2-8

Port of Oakland

the new rail terminal at the main gate would route truck traffic over rail tracks and 7th Street without impeding traffic along 7th Street. Direct employment projected for on-site marine and rail terminal operations would be approximately 2,965 jobs.

This alternative also includes developing approximately 275 acres of marine terminal space and five new berths along the Oakland Inner Harbor (parts of Areas A, B, E, and F). This level of proposed development would require relocation of the Harbor Transportation Center and Middle Harbor Road. Demolition and site preparation would be required prior to the construction of proposed facilities. The Port is exploring recycling/reuse of construction and building debris either on- or off-site.

The Reduced Harbor Fill Alternative also would develop an approximately 227-acre public waterfront access and marine habitat enhancement area in the Oakland Middle Harbor referred to as Public Access and Habitat Enhancement Component 4 (Figure 2-10). Approximately 31 acres would be available for public access along the shoreline and at Point Arnold and the Western Pacific mole, while the remaining 196 acres would be dedicated to habitat enhancement.

This development would provide public access along the entire perimeter of the Middle Harbor and would include areas for spectator sports at Point Arnold and informal passive recreation, such as picnicking, hiking, and kite flying at the Western Pacific Mole. Habitat creation and restoration would be developed along the eastern and southern perimeters of Middle Harbor (see Chapter 5, Biological Resources). Parking would be provided to accommodate approximately 150 vehicles.

Compared to the other three alternatives, the Reduced Harbor Fill Alternative requires the least net amount of solid fill in the Inner and Middle Harbors to construct on-site transportation infrastructure (a reduction of nine acres). The net total amount of pile-supported fill would be reduced by approximately eight acres. The Oakland Inner Harbor would be expanded to an approximate width of 730 feet at the northern end of the proposed marine terminal area. As a result, approximately 44 acres of hard fill would be removed from the Oakland Inner Harbor, while about 22 acres of covered fill would be removed in the Oakland Middle Harbor. Placed fill would include about 35 acres of hard materials, primarily in the Oakland Middle Harbor for development of marine terminals, and approximately 14 acres of covered fill, such as for the proposed marine terminal berths in the Oakland Inner Harbor.

2.3 Environmentally Preferable/Environmentally Superior Alternative

NEPA requires that an environmentally preferable alternative be identified and CEQA requires that an environmental superior alternative be identified. The No Action Alternative is the environmentally preferable alternative and the Reduced

Harbor Fill Alternative is the environmentally superior reuse alternative, as described in Sections 2.3.1 and 2.3.2.

2.3.1 Identification Process

In order to identify an environmentally superior alternative, environmental impacts were compared across the four reuse alternatives for the issue areas analyzed in Chapters 5 and 6. This comparison was used to determine which alternative would result in the least overall adverse environmental impact while providing the greatest overall public and environmental benefit and could therefore be identified as the environmentally superior reuse alternative. Environmental impacts are substantially similar for the following areas under the four reuse alternatives as described in Chapters 5 and 6:

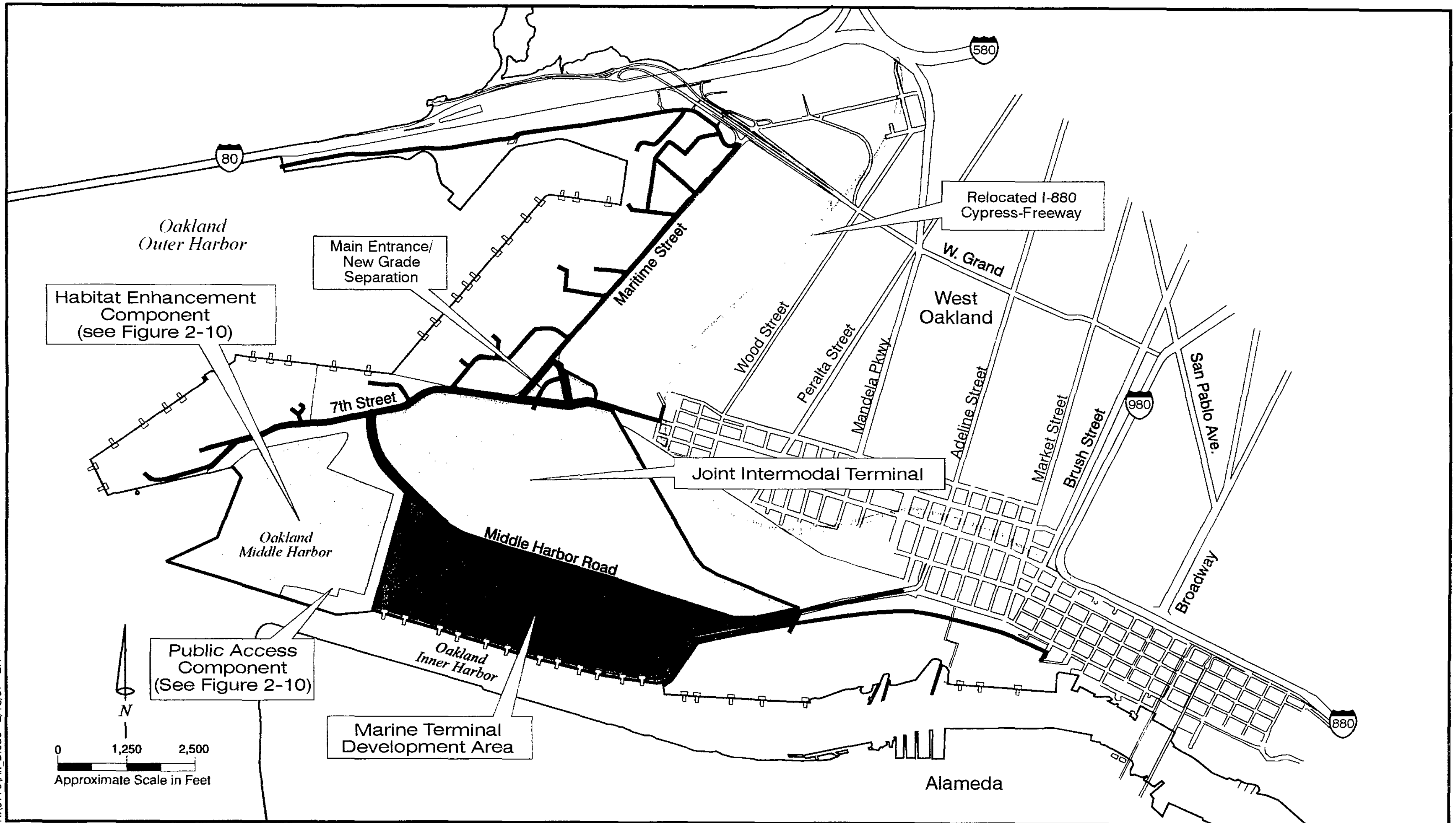
- Socioeconomics;
- Water Resources;
- Geology and Soils;
- Noise;
- Utilities;
- Hazardous Materials and Waste;
- Cumulative Impacts;
- Growth-Inducing Impacts;
- Significant Unavoidable Adverse Effects;
- Short-term and Long-term Productivity;
- Irreversible/Irretrievable Commitment of Resources; and
- Environmental Justice.

2.3.2 Determination of Environmentally Preferable and Environmentally Superior Alternative

The determination of an environmentally preferable/superior alternative was based on a comparison of the differences in the following areas analyzed in Chapters 4 and 5:

- Land Use;
- Public Services;
- Cultural Resources;
- Visual Resources;
- Biological Resources;
- Traffic and Circulation; and
- Air Quality.

For each of these seven issue areas, differences in the environmental impacts of the No Action, Navy disposal, and Port reuse alternatives are reviewed below and compared in Table 2-5. These differences then are considered together to identify the environmentally preferable and environmentally superior alternative.



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This alternative includes development of a 320-acre intermodal rail terminal, a 275-acre marine terminal, 31 acres of public access, and 196 acres of habitat enhancement in the Middle Harbor.

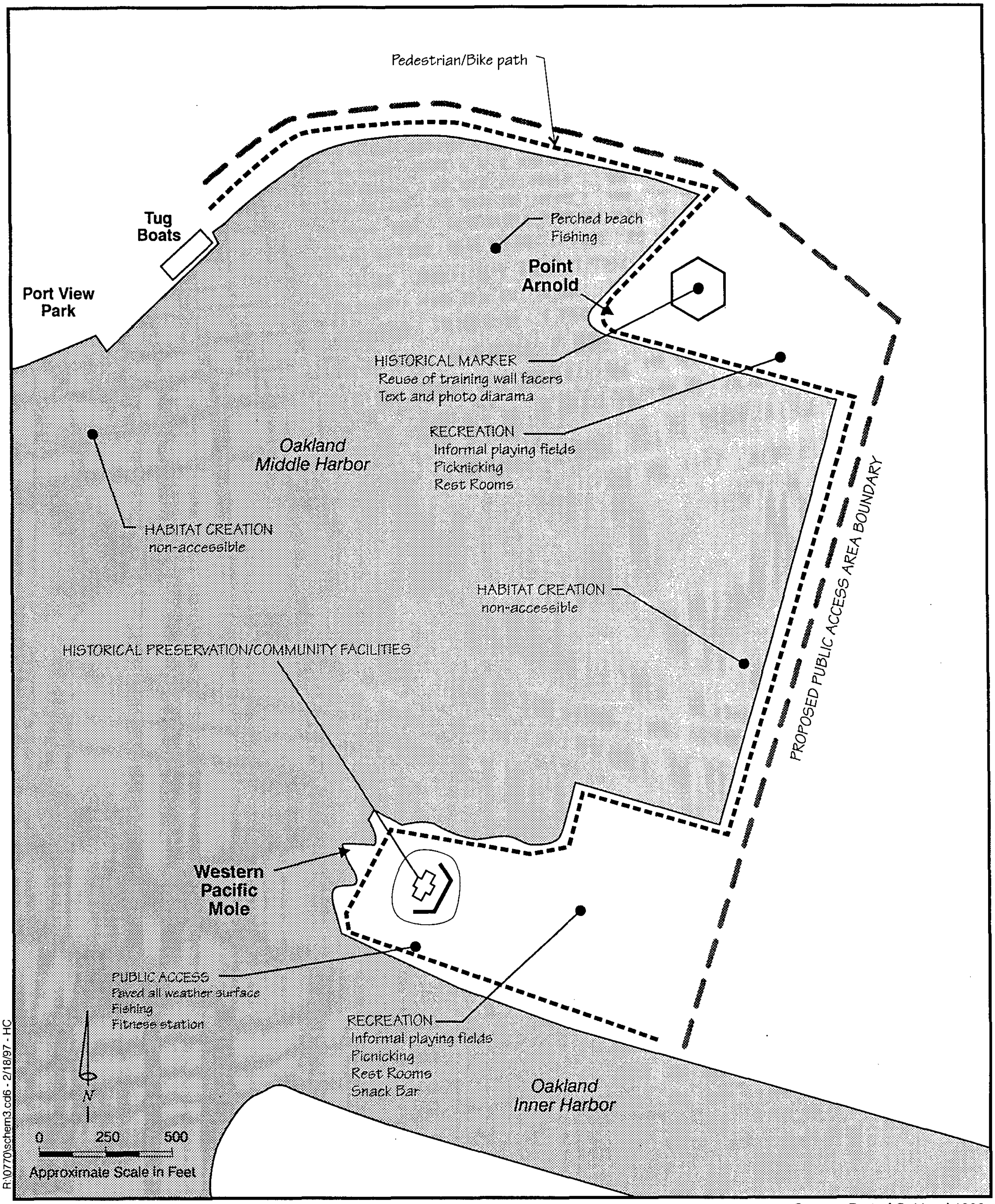
Source: Port of Oakland 1996

Reduced Harbor Fill Alternative

Fleet & Industrial Supply Center Oakland
and Port of Oakland

Port of Oakland

Figure 2-9



In Component 4, 196 acres will be submerged while 31 acres will be on land. Features of this component depend on community and resource agency input, and may be associated with any of the alternatives.

Source: Port of Oakland 1996

Reduced Harbor Fill Alternative
Public Access and
Habitat Enhancement Component 4

Fleet & Industrial Supply Center Oakland
and Port of Oakland
Figure 2-10

Port of Oakland

The Navy No Action Alternative has no significant unmitigable project impacts, as shown in Table 2-5, and, for the purposes of NEPA, is the environmentally preferable alternative. However, the No Action Alternative would not allow the Port to achieve its objectives of increasing productivity and improving efficiency of Port integrated intermodal services, providing for growth of railroad intermodal capacity, and responding to continuing trends and requirements in maritime container shipping and overland transportation. For the purposes of CEQA, the environmentally superior reuse alternative is the Reduced Harbor Fill Alternative.

The No Action Alternative would result in continued drayage (i.e., hauling cargo by truck) between Richmond and the Port along Interstate 80 that would contribute to future significant degradation in levels of service on Bay Area freeways. Furthermore, socioeconomic gains in terms of new jobs and increased incomes in the region, as well as new public waterfront access and habitat improvements in the Oakland Middle Harbor, would not be realized.

2.3.2.1 Land Use

All four reuse alternatives are compatible land use alternatives in that the project site is designated as a port priority use under the Seaport Plan and is consistent with city, Port, and other regional plans. The Reduced Harbor Fill Alternative is the environmentally superior alternative when considering only land use impacts because it would create new public access and habitat enhancement improvements in the Middle Harbor without requiring use of Oakland Army Base property. Therefore, this alternative would provide the greatest benefit with respect to future public recreational uses and waterfront access in the project area. Although the Minimum Marine/Minimum Rail Alternative would not remove Middle Harbor Park, this small one-acre facility is difficult to access and provides limited public recreational amenities. The net public land use benefit derived from implementing the Reduced Harbor Fill Alternative would more than offset the loss of Middle Harbor Park.

2.3.2.2 Public Services

Implementation of either the Maximum Marine/Maximum Rail or Reduced Harbor Fill Alternatives would have a significant and mitigable impact on local medical services because they would result in the removal of a clinic located on the western portion of the Southern Pacific railyard that provides medical care for non-life threatening injuries to the West Oakland community. However, this clinic is located in a heavily industrial area surrounded by heavy truck traffic and requiring an at-grade rail crossing to reach it. Implementation of mitigation recommended under both the Maximum Marine/Maximum Rail and Reduced Harbor Fill Alternatives would relocate this clinic to a safer and more accessible location within the West Oakland community. Therefore, impacts to public services are equivalently superior for the Maximum Marine/Maximum Rail and Reduced Harbor Fill Alternatives.

Table 2-5
Identification of Environmentally Preferable and Superior Alternative

Impact Issues	No Action Alternative	Navy Disposal	Maximum Marine/ Maximum Rail Alternative	Minimum Marine/ Minimum Rail Alternative	Maximum Marine/ Minimum Rail Alternative	Reduced Harbor Fill Alternative
Land Use						
Removal of Middle Harbor Park	○	○	◑	○	◑	◑a*
Public Services						
Removal of local medical clinic	○	○	◑a*	⦶	⦶	◑a*
Cultural Resources						
Demolition of historic buildings and structures in the Southern Pacific West Oakland Shops Historic District	○	○	◑	○*	○	○
Demolition of historic buildings and structures in the Oakland Army Base Historic District	○	○	○	○*	◑	○
Demolition of North Training Wall	○	○	◑	○*	◑	◑
Visual Resources						
Loss of visual access from Middle Harbor Park	○	○	◑	○	◑	◑a*
Biological Resources						
Potential loss of least tern foraging habitat in Oakland Inner Harbor	○	○	◑	⦶	◑a*	◑a*
Potential loss of burrowing owl habitat at Middle Harbor Park	○	○	◑	○	◑a*	◑a*
Traffic and Circulation						
Intersections experiencing significant level of service/delay impacts (number of intersections)	○	○	◑*(1)	◑*(1)	◑*(1)	◑*(1)
Air Quality						
Traffic-related ozone precursor emissions	○	○	●	●b*	●	●

LEGEND:

Level of Impact
● = Significant and not mitigable
◑ = Significant and mitigable
⦶ = Not significant
○ = None

Notes:
* = Indicates environmentally preferable and environmentally superior alternative for a particular issue area
a = Indicates that this reuse alternative would generate a net environmental benefit to a particular resource category as a result of the project. For example, although the Reduced Harbor Fill Alternative would remove Middle Harbor Park, the creation of new public access and habitat enhancement improvements in the Middle Harbor would more than offset this land use impact.
b = Indicates that this reuse alternative would generate the lowest quantity of emissions.
(#) = Numbers in parentheses refer to number of intersections/freeway segments that may experience significant level of service/delay impacts (for Traffic and Circulation).

2.3.2.3 Cultural Resources

The Minimum Marine/Minimum Rail Alternative is the environmentally superior alternative with respect to overall impacts to cultural resources. All four reuse alternatives, including the No Action and Navy disposal alternatives, would have an adverse impact on the Naval Supply Center, Oakland Historic District. However, implementation of the Minimum Marine/Minimum Rail Alternative would not require demolition of historic buildings or structures at the Oakland Army Base or the Southern Pacific West Oakland Shops historic districts, nor would it require demolition of the North Training Wall, an historic property located along the north edge of the Oakland Inner Harbor. The Maximum Marine/Maximum Rail, Maximum Marine/Minimum Rail, and Reduced Harbor Fill Alternatives could result in significant and mitigable impacts on these historic resources, rendering them the least preferable alternatives with respect to cultural resources.

2.3.2.4 Visual Resources

Construction of proposed marine terminals along the north side of the Oakland Inner Harbor associated with the Maximum Marine/Maximum Rail, Maximum Marine/Minimum Rail, and Reduced Harbor Fill Alternatives could cause significant and mitigable aesthetic impacts through loss of visual shoreline access at Middle Harbor Park. Under the Minimum Marine/Minimum Rail Alternative, the Union Pacific shoreline and Middle Harbor Park would remain in their existing condition; however, the resulting net gain in public visual access to Middle Harbor is less than half the amount provided under the other three reuse alternatives. The Reduced Harbor Fill Alternative would more than offset the loss of visual access at the underserved Middle Harbor Park by creating new public open space and habitat enhancement improvements at the Middle Harbor. The Reduced Harbor Fill Alternative is environmentally superior with respect to visual impacts when compared to the Maximum Marine/Maximum Rail and Maximum Marine/Minimum Rail Alternatives because it provides the greatest amount of visual improvements in the Middle Harbor without requiring use of off-site Oakland Army Base property.

2.3.2.5 Biological Resources

Turbidity caused by dredging and construction of marine terminals along the Oakland Inner Harbor under the Maximum Marine/Maximum Rail, Maximum Marine/Minimum Rail, and Reduced Harbor Fill Alternatives could cause a potential significant and mitigable impact to the California least terns' ability to find food in the Oakland Inner Harbor. Developing Middle Harbor Park also could remove potential burrowing owl habitat under these three reuse alternatives. Under the Minimum Marine/Minimum Rail Alternative, no dredging in the Oakland Inner Harbor is proposed as part of the Vision 2000 Program and Middle Harbor Park would not be developed; however, a new channel and turning basin would have to be maintained in the Middle Harbor, thereby substantially reducing the quantity and quality of shallow water habitat available for restoration and enhancement in this area.

Under the Maximum Marine/Maximum Rail, Maximum Marine/Minimum Rail, and Reduced Harbor Fill Alternatives, Middle Harbor would be converted to valuable shallow water habitat and public access instead of being dredged regularly as a channel and turning basin for container vessels, as proposed under the Minimum Marine/Minimum Rail Alternative. The Maximum Marine/Minimum Rail and Reduced Harbor Fill Alternatives provide for the most habitat enhancement acreage of all four reuse alternatives, thereby contributing the maximum net benefit to biological resources in the project area. Therefore, the Maximum Marine/Minimum Rail and Reduced Harbor Fill Alternatives are considered equivalently superior with respect to biological resources.

2.3.2.6 Traffic and Circulation

Only one intersection, Adeline Street and 3rd Street, would experience a significant and mitigable level of service delay under all four reuse alternatives. Therefore, traffic impacts would be equivalent for these four alternatives.

2.3.2.7 Air Quality

All reuse alternatives would have similar not significant impacts on carbon monoxide levels along area roadways. All of the reuse alternatives would result in traffic-related ozone precursor emissions that exceed the BAAQMD impact significance threshold. The Maximum Marine/Minimum Rail Alternative would generate the highest quantity of ozone and PM_{10} precursor emissions, exceeding the impact thresholds for reactive organic compounds (ROG), nitrogen oxides (NOx), sulfur oxides (SOx), as well as direct PM_{10} emissions. The other three reuse alternatives would also exceed the impact significance threshold for these pollutants. The Minimum Marine/Minimum Rail Alternative is environmentally superior when compared to the other three reuse alternatives because it would produce the least amount of ozone precursor, PM_{10} precursor, and direct PM_{10} emissions.

2.3.2.8 Summary

Based on this review, the Reduced Harbor Fill Alternative is the environmentally superior reuse alternative. It is superior overall with respect to land use and visual resources. Local public service impacts are equivalently superior for both the Maximum Marine/Maximum Rail and Reduced Harbor Fill Alternatives. Impacts to biological resources are equivalently superior for both the Maximum Marine/Minimum Rail and Reduced Harbor Fill Alternatives. Traffic impacts at local intersections are equivalent under all four reuse alternatives. However, the Reduced Harbor Fill Alternative would create a substantial amount of acreage for public waterfront access, recreation and open space development, and habitat and historic resource improvements in the Oakland Middle Harbor, while maximizing marine and rail operating capacity that does not require off-site development of Oakland Army Base property. Therefore, the Reduced Harbor Fill Alternative is considered the environmentally superior reuse alternative.

2.4 PROJECT PERMIT REQUIREMENTS

Several laws and regulations would apply to implementation of the Vision 2000 Program. A summary of applicable regulatory requirements and considerations for individual resource areas is described in Appendix E. Table 2-6 below lists potential permit and review requirements from applicable federal, state, and local agencies that would likely be involved in the project approval and implementation process.

Table 2-6
Vision 2000 Program Permit and Review Requirements

Agency	Permit	Regulatory Review
San Francisco Bay Conservation and Development Commission	Permit for fill, dredging, and construction in shoreline band	Review conformity to McAteer-Petris Act and San Francisco Bay Plan
US Army Corps of Engineers	Clean Water Act Section 404 permit for discharging dredged material, placing fill and pilings; River and Harbors Act Section 10 permit for construction in navigable waters	NEPA review
US Environmental Protection Agency	Project review	NEPA Oversight comments, Section 404 and Air Quality
US Federal Highway Administration	Department of Transportation Act Section 4(f) analysis	NEPA review
US Coast Guard		Navigational hazards
US National Marine Fisheries Service		Comments on NEPA document and Corps permit process
US Fish and Wildlife Service		Comments on NEPA document and Corps permit process
California Department of Fish and Game		Comments on CEQA/NEPA document for fish and wildlife impacts and Section 404 permit
California Department of Transportation	Federal funding approval	CEQA review
San Francisco Bay Regional Water Quality Control Board	Water quality certification, NPDES permit, waste discharge requirements	Porter-Cologne Act, Clean Water Act, Title 23
State Historic Preservation Officer/(Advisory Council on History Preservation)	Revised Memorandum of Agreement for FISCO	National Historic Preservation Act Section 106
City of Oakland	Building and demolition	CEQA review

Source: Brady and Associates 1994.

2.5 COMPARISON OF ALTERNATIVES

NEPA and CEQA require that the EIS/EIR include a presentation of the alternatives in comparative form, to define the issues and to provide a clear basis for choice among options by the decision-makers and the public. Table 2-7 lists the significant impacts and corresponding mitigation measures for each alternative.

Table 2-7
Summary of Significant Environmental Impacts and Mitigations

Navy Action		Vision 2000 Program Alternatives			
No Action	**Navy Disposal**	**Maximum Marine Terminal/Maximum Rail Terminal**	**Minimum Marine Terminal/Minimum Rail Terminal**	**Maximum Marine Terminal/Minimum Rail Terminal**	**Reduced Harbor Fill**
Land Use					
No significant impacts are expected	No impacts are expected	*Impact 1: Removal of Middle Harbor Park.* Proposed marine terminal development along the Oakland Inner Harbor would displace the approximately one-acre Middle Harbor Park and would require reconfiguration of Middle Harbor Road. This would result in the loss of a city park and would impact the proposed route of the San Francisco Bay Trail through the project site. *Mitigation 1.* The Port's Vision 2000 Program includes a public access component that would substantially increase the amount of usable public recreational and open space opportunities in the area, an environmental benefit. Under the Maximum Marine/ Maximum Rail Alternative, up to 29 acres of public access and an additional 177 acres of habitat improvements are proposed in the Middle Harbor. These improvements would extensively improve public waterfront access in the project area. Implementing Mitigation 1 would reduce this impact to a level that is not significant.	No significant impacts are expected	*Impact 1: Removal of Middle Harbor Park.* The proposed location of some marine terminal, container storage, and truck parking areas would displace the approximately one-acres Middle Harbor Park on the Oakland Inner Harbor. Displacing this park would impact the proposed route of the San Francisco Bay Trail through the project site as discussed under the Maximum Marine/Maximum Rail Alternative. This impact is significant and mitigable and would take place on non-Navy property owned by the Port. *Mitigation 1.* Implement the same mitigation presented under the Maximum Marine/Maximum Rail Alternative. However, under the Maximum Marine/Minimum Rail Alternative, up to 39 acres could be developed as public access. Implementing Mitigation 1 would reduce this impact to a level that is not significant.	*Impact 1: Removal of Middle Harbor Park.* The proposed location of some marine terminal, container storage, and truck parking areas would displace Middle Harbor Park. Displacing this park would impact the proposed route of the San Francisco Bay trail through the project site, as discussed under the Maximum Marine/Maximum Rail Alternative. This impact would take place on non-Navy property owned by the Port and would be a significant and mitigable impact. *Mitigation 1.* Implement the same mitigation identified for the Maximum Marine/Maximum Rail Alternative. Implementing Mitigation 1 would reduce this impact to a level that is not significant.
Socioeconomics					
No impacts are expected	No impacts are expected	No impacts are expected	No impacts are expected	No impacts are expected	No impacts are expected

Table 2-7 *(Continued)*
Summary of Significant Environmental Impacts and Mitigations

Navy Action		Vision 2000 Program Alternatives			
No Action	**Navy Disposal**	**Maximum Marine Terminal/Maximum Rail Terminal**	**Minimum Marine Terminal/Minimum Rail Terminal**	**Maximum Marine Terminal/Minimum Rail Terminal**	**Reduced Harbor Fill**
Public Services					
No significant impacts are expected	No impacts are expected	*Impact 1: Removal of Local Medical Clinic*. Buildout of this alternative would require removal of the Port branch of the Spectrum Medical Care clinic, located on Southern Pacific's West Oakland Railyard, due to the realignment of railroad tracks. The clinic is a tenant of the Southern Pacific Railroad and operates under a month-to-month lease. The impact would be significant but mitigable. *Mitigation 1*. If the Port branch of the Spectrum Medical Care clinic is still a tenant of the Southern Pacific property when and if the Port acquires this land, the Port shall explore methods that would allow this entity to lease other property nearby and relocate. Implementing this mitigation would reduce this impact to a level that is not significant.	No significant impacts are expected	No significant impacts are expected	*Impact 1: Removal of Local Medical Clinic*. Impacts to medical services would be similar to those under the Maximum Marine/Maximum Rail Alternative. Buildout of this alternative would require removing the Port branch of the Spectrum Medical Care clinic, due to the realignment of railroad tracks on Southern Pacific property. This impact would be significant but mitigable. *Mitigation 1*: The mitigations for emergency medical services are the same as those identified for the Maximum Marine/Maximum Rail Alternative. Implementing Mitigation 1 would reduce this impact to a level that is not significant.
Cultural Resources					
Impact 1: Demolition of Historic Buildings and Structures in the Naval Supply Center, Oakland Historic District. Under this alternative, the Navy would not dispose of the nonreversionary Navy property. However, the Port would proceed with leasing all	*Impact 1: Demolition of Historic Buildings and Structures in the Naval Supply Center, Oakland Historic District*. Under this alternative, the Navy would dispose of nonreversionary Navy property at FISCO for use by the Port. The transfer, lease, or sale of a	*Impact 1: Demolition of Historic Buildings and Structures in the Naval Supply Center, Oakland Historic District*. The Maximum Marine/Maximum Rail Alternative could adversely affect NRHP-eligible properties because an undertaking is	*Impact 1: Demolition of Historic Buildings and Structures in the Naval Supply Center, Oakland Historic District.* The Minimum Marine/Minimum Rail Alternative would have the same affect on the Naval Supply Center, Oakland	*Impact 1: Demolition of Historic Buildings and Structures in the Naval Supply Center, Oakland Historic District*. The Maximum Marine/Minimum Rail Alternative would have the same affect on the Naval Supply Center, Oakland	*Impact 1: Demolition of Historic Buildings and Structures in the Naval Supply Center, Oakland Historic District*. The Reduced Harbor Fill Alternative would have the same affect on the Navy Supply Center Historic District as that described under the Maximum

Table 2-7 *(Continued)*
Summary of Significant Environmental Impacts and Mitigations

Navy Action		Vision 2000 Program Alternatives			
No Action	**Navy Disposal**	**Maximum Marine Terminal/Maximum Rail Terminal**	**Minimum Marine Terminal/Minimum Rail Terminal**	**Maximum Marine Terminal/Minimum Rail Terminal**	**Reduced Harbor Fill**
of FISCO, including both reversionary and nonreversionary Navy property. Under the No Action Alternative, the Port may demolish all or nearly all contributing buildings within the Naval Supply Center, Oakland Historic District. The No Action Alternative would result in an adverse effect and a substantial adverse change to this historic property that could be mitigated for the purposes of NEPA. *Mitigation 1.* The mitigation presented below for this significant impact to cultural resources represents a range of options available to the Port that may be selected to reduce this impact to a level that is not significant. These measures may be revised or additional measures may be formulated as mitigation during the next tier of environmental review. The Navy has initiated consultation with the SHPO and the ACHP to amend the terms of the 1994 MOA for leasing all of FISCO to the Port. The revised memorandum of agreement (MOA) need only be signed by the Navy and the Council to be valid and satisfy Section 106. The Port has met with the Oakland Landmarks Preservation Advisory Board to	property from federal ownership without adequate restrictions or deed covenants to ensure preservation is an adverse effect and, for purposes of NEPA, would be a significant impact. This impact would apply to all FISCO contributing buildings and structures within the NRHP-eligible Naval Supply Center, Oakland Historic District. The disposal would be made with the understanding that the Port may demolish all or nearly all contributing buildings within the Naval Supply Center, Oakland Historic District. This is considered a significant but mitigable impact for the purposes of NEPA. *Mitigation 1.* Implement Mitigation 1 under the No Action Alternative.	considered to have an adverse impact when the effect on a historic property may diminish the integrity of that resource. Under the Maximum Marine/Maximum Rail Alternative, the Port may demolish all or nearly all contributing buildings within the Naval Supply Center, Oakland Historic District. The Maximum Marine/Maximum Rail Alternative would result in an adverse effect and a substantial adverse change to this historic property that could be mitigated for the purposes of NEPA. *Mitigation 1.* The Navy has initiated consultation with the SHPO and the ACHP to amend the terms of the 1994 MOA for leasing all of FISCO and the eventual disposal of FISCO to the Port. The revised MOA need only be signed by the Navy and the Council to be valid and to satisfy Section 106. The Port has met with the Oakland Landmarks Preservation Advisory Board to revise the mitigation measures that will take into account the larger areas of impacts associated with Navy disposal of all of FISCO. This consultation will consider the position of interested parties. The Oakland Landmarks	Historic District at FISCO as that described under the Maximum Marine/Maximum Rail Alternative. This impact would be significant and mitigable. *Mitigation 1.* The mitigation for impacts to Naval Supply Center, Oakland Historic District buildings and structures is the same as that identified under the Maximum Marine/Maximum Rail Alternative. Implementing Mitigation 1 would reduce this impact to a level that is not significant.	Historic District at FISCO as that described under the Maximum Marine/Maximum Rail Alternative. This impact would be significant and mitigable and would occur on both reversionary Navy property and nonreversionary Navy property. *Mitigation 1.* The mitigation measures for impacts to historic buildings and structures in the Naval Supply Center, Oakland Historic District are the same as identified under the Maximum Marine/Maximum Rail Alternative. Implementing Mitigation 1 would reduce this impact to a level that is not significant. <u>*Impact 2: Demolition of Historic Buildings and Structures in the Oakland Army Base Historic District*</u>. The Maximum Marine/Minimum Rail Alternative would result in an adverse effect to the Oakland Army Base Historic District on non-Navy property in two respects. First, it would expand the proposed rail terminal into the Oakland Army Base Knight Yard, a contributing element of the district. Second, it would demolish or modify a number of on-site buildings. The Maximum Marine/Minimum Rail Alternative would result in an adverse effect and a	Marine/Maximum Rail Alternative. This impact would be significant and mitigable. *Mitigation 1.* The mitigation measures for impacts to FISCO historic buildings and structures are the same as those identified under the Maximum Marine/Maximum Rail Alternative. Implementing Mitigation 1 would reduce this impact to a level that is not significant. <u>*Impact 2: Demolition of the North Training Wall*</u>. Similar to the Maximum Marine/Maximum Rail Alternative, implementing the Reduced Harbor Fill Alternative would require extensive work in the Union Pacific Intermodal Railyard and would result in an adverse effect and substantial adverse change to the north training wall. This would be a significant and mitigable impact. *Mitigation 2.* The mitigation measures for impacts to the north training wall are the same as those identified for the Maximum Marine/Maximum Rail Alternative. Implementing Mitigation 2 would reduce this impact to a level that is not significant.

Table 2-7 *(Continued)*
Summary of Significant Environmental Impacts and Mitigations

Navy Action		Vision 2000 Program Alternatives			
No Action	**Navy Disposal**	**Maximum Marine Terminal/Maximum Rail Terminal**	**Minimum Marine Terminal/Minimum Rail Terminal**	**Maximum Marine Terminal/Minimum Rail Terminal**	**Reduced Harbor Fill**
revise the mitigation measures that will take into account the larger areas of impacts associated with the Navy leasing all of FISCO. This *consultation will consider* the position of interested parties. The Oakland Landmarks Preservation Advisory Board, Navy, and Port have agreed to the following measures to include in a revised MOA: • The Port shall continue to provide publicized tours, led by docents and in coordination with the Navy, as long as practicable and safe for public access to FISCO. Publicity for tours will be disseminated as widely as possible, including press releases to local media, announcements on KTOP (City of Oakland channel) and other public access stations, and coordinated publicity with the Oakland Tours Program and Oakland Heritage Alliance; • The Port shall continue to demolish FISCO structures in phases; • The Port shall develop, publicize, and disseminate a documentary video to preserve the history and significance of FISCO. As part of the production, the		Preservation Advisory Board, the Navy, and the Port are considering the following potential measures to include in a revised MOA: • The Port shall continue to provide publicized tours, led by docents and in coordination with the Navy, as long as practicable and safe for public access to FISCO. Publicity for tours will be disseminated as widely as possible, including press releases to local media, announcements on KTOP (City of Oakland channel) and other public access stations, and coordinated publicity with the Oakland Tours Program and Oakland Heritage Alliance; • *The Port shall continue to* demolish FISCO structures in phases; • The Port shall develop, publicize, and disseminate a documentary video to preserve the history and *significance of* FISCO. As part of the production, the Port shall implement a one-time distribution and outreach program, which will include producing, packaging, and distributing tapes and viewer guides and a professional good faith		substantial adverse change to this historic property that could be mitigated. The Navy has no disposal authority over the Oakland Army Base property and any decision allowing Port use of this land would require separate Army approval. *Mitigation 2.* Options for mitigating adverse effects to Oakland Army Base historic buildings and structures are similar to those identified for impacts to FISCO historic buildings and structures (Impact 1). These should include recording the yards and affected buildings to HABS standards prior to demolition, under conditions set forth by the National Park Service; phasing demolition, so that buildings would be removed only as needed; and donating rails or other surplus material to a nonprofit railroad museum. The specific mitigations for impacts to Oakland Army Base historic buildings and structures would be specified, if required, in a MOA among ACHP, SHPO, the Army, and the Port, as part of subsequent environment documentation. Implementing Mitigation 2 in a manner consistent with federal laws and regulations would reduce these impacts to a level that is not significant.	

Table 2-7 *(Continued)*
Summary of Significant Environmental Impacts and Mitigations

Navy Action		Vision 2000 Program Alternatives			
No Action	**Navy Disposal**	**Maximum Marine Terminal/Maximum Rail Terminal**	**Minimum Marine Terminal/Minimum Rail Terminal**	**Maximum Marine Terminal/Minimum Rail Terminal**	**Reduced Harbor Fill**
Port shall implement a one-time distribution and outreach program, which will include producing, packaging, and distributing tapes and viewer guides and a professional good faith effort to pursue television or nontheatrical distribution of the video; • The Port shall prepare a movable exhibit commemorating FISCO and its place in Oakland history. The Port also shall provide prominent dedicated exhibition space at the Oakland Airport, as part of a program with the collaboration of and consultation with the Oakland Museum. The exhibit at the airport will provide space for revolving exhibits related to Oakland's cultural history. The Port also shall work with the museum and other agencies to present the FISCO exhibit at other appropriate locations on an ongoing basis; • The Port shall include in the design and development of the public access areas at FISCO a structure, land form, or landscaping feature that captures in true scale the enormity of the facilities		effort to pursue television or nontheatrical distribution of the video; • The Port shall prepare a movable exhibit commemorating FISCO and its place in Oakland history. The Port also shall provide prominent dedicated exhibition space at the Oakland Airport, as part of a program with the collaboration of and consultation with the Oakland Museum. The exhibit at the airport will provide space for revolving exhibits related to Oakland's cultural history. The Port also shall work with the museum and other agencies to present the FISCO exhibit at other appropriate locations on an ongoing basis; • The Port shall include in the design and development of the public access areas at FISCO a structure, land form, or landscaping feature that captures in true scale the enormity of the facilities and activities required for FISCO's historic function. The Port shall share design concepts and shall consult with the Oakland Public Art Advisory Commissions, the Oakland Landmarks Board,		<u>*Impact 3: Demolition of the North Training Wall*</u>. Similar to the Maximum Marine/Maximum Rail Alternative, implementation of the Maximum Marine/Minimum Rail Alternative would require extensive work in the Union Pacific Intermodal Railyard and would result in an adverse effect and substantial adverse change to the north training wall. This would be a significant and mitigable impact. *Mitigation 3*. The mitigation measures for impacts to the north training wall are the same as those identified for the Maximum Marine/Maximum Rail Alternative. Implementing Mitigation 3 would reduce this impact to a level that is not significant.	

Table 2-7 *(Continued)*
Summary of Significant Environmental Impacts and Mitigations

Navy Action		Vision 2000 Program Alternatives			
No Action	**Navy Disposal**	**Maximum Marine Terminal/Maximum Rail Terminal**	**Minimum Marine Terminal/Minimum Rail Terminal**	**Maximum Marine Terminal/Minimum Rail Terminal**	**Reduced Harbor Fill**
and activities required for FISCO's historic function. The Port shall share design concepts and shall consult with the Oakland Public Art Advisory Commissions, the Oakland Landmarks Board, Oakland Heritage Alliance, ProArts, and the West Oakland community prior to final design; • The Port shall prepare and submit an application to the State Historic Resources Commission to designate FISCO as a State Historical Point of Interest and to incorporate a recognition of this designation into the public access area; and • The Port shall allow the three officers quarters buildings to be moved off-site and reused by nonprofit or other community-based organizations at no charge for a period not to exceed three months prior to demolishing the buildings. For the NEPA evaluation, implementing the stipulations in the amended MOA, mitigation 1 would reduce this impact to a level that is not significant.		Oakland Heritage Alliance, ProArts, and the West Oakland community prior to final design; • The Port shall prepare and submit an application to the State Historic Resources Commission to designate FISCO as a State Historical Point of Interest and to incorporate a recognition of this designation into the public access area; and • The Port shall allow the three officers quarters buildings to be moved off-site and reused by nonprofit or other community-based organizations at no charge for a period not to exceed three months prior to demolishing the buildings. Implementing the stipulations in the amended MOA, mitigation 1, would reduce this impact to a level that is not significant. *Impact 2: Demolition of Historic Buildings and Structures in the Southern Pacific West Oakland Shops Historic District*. The Maximum Marine/Maximum Rail Alternative would require reorganization of the Southern Pacific West Oakland Railyard. This also would result in an adverse effect to four NRHP-			

Table 2-7 *(Continued)*
Summary of Significant Environmental Impacts and Mitigations

Navy Action		Vision 2000 Program Alternatives			
No Action	Navy Disposal	Maximum Marine Terminal/Maximum Rail Terminal	Minimum Marine Terminal/Minimum Rail Terminal	Maximum Marine Terminal/Minimum Rail Terminal	Reduced Harbor Fill
		eligible buildings located in the southern subdistrict of the Southern Pacific West Oakland Shops Historic District. Although four buildings in the northern subdistrict of this historic district already have been demolished as part of the Cypress freeway project, demolition of the four contributing buildings in the southern subdistrict would result in an adverse effect and a substantial adverse change to this historic property that could be mitigated. *Mitigation 2.* Options for mitigating adverse effects to buildings and structures in the Southern Pacific West Oakland Shops Historic District are similar to those identified for the Cypress Freeway project in Section 3.4. These four buildings could be marketed for relocation and use off-site or, alternatively, recorded to the standards of HABS/HAER prior to demolition. Specific mitigation measures will be identified during subsequent consultation and coordination among ACHP, SHPO, the Port, and the Southern Pacific Railyard, and will be addressed as part of future project-level environmental documentation. Implementing Mitigation 2 in a manner consistent with federal			

Table 2-7 *(Continued)*
Summary of Significant Environmental Impacts and Mitigations

Navy Action		Vision 2000 Program Alternatives			
No Action	Navy Disposal	Maximum Marine Terminal/Maximum Rail Terminal	Minimum Marine Terminal/Minimum Rail Terminal	Maximum Marine Terminal/Minimum Rail Terminal	Reduced Harbor Fill
		laws and regulations would reduce these impacts to a level that is not significant. *<u>Impact 3: Demolition of the North Training Wall</u>*. The Maximum Marine/Maximum Rail Alternative would require extensive work in the Union Pacific Intermodal Yard, leased from the Port, just south of FISCO. There is only one historic property in the area, the north training wall, which is visible for about 2,400 feet on the western end of the Union Pacific track area at the edge of the Oakland Inner Harbor. Under The Maximum Marine/Maximum Rail Alternative, new marine terminals would be created on the north side of the Oakland Inner Harbor, requiring demolition of most visible elements of the north training wall. This demolition would result in an adverse effect and substantial adverse change to this historic property; this change is considered a significant impact that could be mitigated. *Mitigation 3.* Mitigation options for this adverse effect are limited. If the demolition is total, the only available mitigation measure is recordation of the features to the standards of the Historic			

Table 2-7 *(Continued)*
Summary of Significant Environmental Impacts and Mitigations

Navy Action		Vision 2000 Program Alternatives			
No Action	**Navy Disposal**	**Maximum Marine Terminal/Maximum Rail Terminal**	**Minimum Marine Terminal/Minimum Rail Terminal**	**Maximum Marine Terminal/Minimum Rail Terminal**	**Reduced Harbor Fill**
		American Engineering Record prior to demolition, under conditions set forth by the National Park Service. If some visible elements of the north training wall remained after project completion, those remnant elements could be restored or interpreted as part of a program to mitigate adverse effects on the remainder of the wall. Specific mitigation measures will be identified during subsequent consultation and coordination among ACHP, SHPO, the Port, and Army Corps of Engineers and will be addressed as part of future environmental documentation. Implementing Mitigation 3 in a manner consistent with federal laws and regulations would reduce these impacts to a level that is not significant.			
Visual Resources					
No significant impacts are expected	No impacts are expected	*Impact 1: Off-site Views from Alameda Shoreline.* The Maximum Marine/Maximum Rail Alternative could affect off-site views of the project site from existing public access points along the Alameda shore of the Oakland Inner Harbor. The new marine terminal development would change the industrial character along the waterfront where Union Pacific operations currently occur. However, similar views	No significant impacts are expected	*Impact 1: Loss of Visual Access from Middle Harbor Park.* Visual impacts associated with loss of visual access from Middle Harbor Park under the Maximum Marine/Minimum Rail Alternative would be similar to those described for the Maximum Marine/Maximum Rail Alternative and would be significant and mitigable. *Mitigation 1.* Implementing the	*Impact 1: Off-site Views from Alameda Shoreline.* Implementing the Maximum Marine/Minimum Rail Alternative would result in similar changed views from public access points along the Alameda shore of the Oakland Inner Harbor. Visual effects would be the same as those described for the Maximum Marine/Maximum Rail Alternative, and these would be considered significant and

Table 2-7 *(Continued)*
Summary of Significant Environmental Impacts and Mitigations

Navy Action		Vision 2000 Program Alternatives			
No Action	**Navy Disposal**	**Maximum Marine Terminal/Maximum Rail Terminal**	**Minimum Marine Terminal/Minimum Rail Terminal**	**Maximum Marine Terminal/Minimum Rail Terminal**	**Reduced Harbor Fill**
		of marine terminals, such as cranes, container storage, and berthed vessels, can be obtained now at the Middle Harbor and Howard Terminals; the high cranes, in particular, are easily recognized symbols of the Port and are way-finding landmarks. The proposed marine terminal could add additional visual contrasts and block scenic views of key features of San Francisco Bay, such as the eastern span of the Bay Bridge, Yerba Buena Island, and Mt. Tamalpais in westward views from the Alameda shoreline immediately west of the ferry terminal site. This would be a potential significant but mitigable impact. *Mitigation 1.* Setback the marine terminals from the northern shore of the Oakland Inner Harbor, as proposed under the Reduced Harbor Fill Alternative. This setback would reduce the amount of visual obstruction of Yerba Buena Island and Mt. Tamalpais to a not significant level. Implementing Mitigation 1 would reduce this impact to a level that is not significant. *Impact 2: Loss of Visual Access from Middle Harbor Park.* Eliminating Middle Harbor Park and pier, even though they are small (about one acre), are		mitigation measures described in the Maximum Marine/Maximum Rail Alternative would reduce impacts to a level that is not significant.	mitigable. *Mitigation 1.* Implementing the mitigation measures described in the Maximum Marine/Maximum Rail Alternative would reduce impacts to a level that is not significant. *Impact 2: Loss of Visual Access from Middle Harbor Park.* Visual impacts resulting from loss of Middle Harbor Park would be similar to those described for the Maximum Marine/Maximum Rail Alternative and would be significant and mitigable. *Mitigation 2.* Implement the same mitigation measures described for the Maximum Marine/Maximum Rail Alternative. Implementing Mitigation 2 would reduce these impacts to a level that is not significant.

Table 2-7 *(Continued)*
Summary of Significant Environmental Impacts and Mitigations

Navy Action		Vision 2000 Program Alternatives			
No Action	**Navy Disposal**	**Maximum Marine Terminal/Maximum Rail Terminal**	**Minimum Marine Terminal/Minimum Rail Terminal**	**Maximum Marine Terminal/Minimum Rail Terminal**	**Reduced Harbor Fill**
		not heavily used, and are in relatively poor condition, would remove all public access and visual access to the Oakland Inner Harbor from the Oakland side for almost two miles, between existing access near Jack London Square and the Western Pacific mole. Public views of the Oakland Inner Harbor, Alameda, and beyond towards the San Francisco/Peninsula skyline would be lost in this area. This would be a significant but mitigable impact. *Mitigation 2*. The public access component proposed for the Maximum Marine/Maximum Rail Alternative would create approximately 29 acres of replacement park and recreation facilities and enhanced viewing opportunities, including a *shoreline* pedestrian and bicycle path from Port View Park to the Western Pacific mole along the perimeter of Middle Harbor. Implementation of this plan would provide more open and spectacular views of Bay Area landscape features than those currently observable at Middle Harbor Park. Implementing Mitigation 2 would reduce this impact to a level that is not significant.			

Table 2-7 *(Continued)*
Summary of Significant Environmental Impacts and Mitigations

Navy Action		Vision 2000 Program Alternatives			
No Action	**Navy Disposal**	**Maximum Marine Terminal/Maximum Rail Terminal**	**Minimum Marine Terminal/Minimum Rail Terminal**	**Maximum Marine Terminal/Minimum Rail Terminal**	**Reduced Harbor Fill**
Biological Resources					
No significant impacts are expected	No impacts are expected	<u>*Impact 1: Loss of Least Tern Foraging Habitat*</u>. Short-term turbidity under the Maximum Marine/Maximum Rail Alternative associated with dredging and construction of new berths in the Oakland Inner Harbor could impact the endangered California least terns' ability to find food in the Oakland Inner Harbor. Increased turbidity also could discourage the terns' prey fish from entering the channel, thereby decreasing the supply of available fish during dredging and construction activities. Foraging activity appears to be localized to the mouth of the channel and two small reefs to the west and east of the main entrance to NAS Alameda. Activities resulting in turbidity are expected to be localized and of limited duration. Because of the endangered status of the least tern, any impacts may be considered potentially significant. However, the proposed dredging and construction activities are not expected to affect the least tern foraging areas because they are distant from the foraging sites, they are of short duration, and they are mitigable. In addition, the potentially affected foraging	<u>*Impact 1: Removal of Eelgrass Beds*</u>. The Oakland Middle Harbor eelgrass bed is about 200 square feet in size. Filling the Oakland Middle Harbor could result in sedimentation of this eelgrass bed. This impact would be potentially significant and mitigable. The significance of this impact will be determined through consultation with appropriate resource agencies, including the US Army Corps of Engineers. *Mitigation 1.* Implement Mitigation 3 proposed under the Maximum Marine/Maximum Rail Alternative.	<u>*Impact 1: Loss of Least Tern Foraging Habitat*</u>. This impact is the same as that identified for the Maximum Marine/Maximum Rail Alternative. Short-term siltation associated with construction of new berths in the Oakland Inner Harbor and proposed filling activity in the Oakland Middle Harbor may impact the California least terns' ability to find food in the Oakland Inner Harbor. These impacts are potentially significant, short-term (during construction), and mitigable, and would occur on non-Navy property in the Oakland Inner Harbor. *Mitigation 1.* Mitigations will be the same as identified for the Maximum Marine/Maximum Rail Alternative. Implementing Mitigation 1 would reduce this impact to a level that is not significant. <u>*Impact 2: Loss of Burrowing Owl Habitat*</u>. This impact is the same as that identified for the Maximum Marine/Maximum Rail Alternative. Development of the marine terminals could remove potential burrowing owl habitat at Middle Harbor Park. This impact is considered potentially significant and	<u>*Impact 1: Loss of Least Tern Foraging Habitat*</u>. This impact is the same as identified for the Maximum Marine/Maximum Rail Alternative. Short-term siltation associated with construction of new berths in the Oakland Inner Harbor and proposed filling activity in the Oakland Middle Harbor may impact the California least terns' ability to find food in the Oakland Inner Harbor. These impacts are significant, short-term (during construction), and mitigable and would occur on non-Navy property in the Oakland Inner Harbor. *Mitigation 1.* Mitigations will be the same as those identified for the Maximum Marine/Maximum Rail Alternative. Implementing Mitigation 1 would reduce this impact to a level that is not significant. <u>*Impact 2: Loss of Burrowing Owl Habitat*</u>. This impact is the same as that identified for the Maximum Marine/Maximum Rail Alternative. Development of the marine terminals could remove potential burrowing owl habitat at Middle Harbor Park. This impact is considered potentially significant and mitigable.

Table 2-7 *(Continued)*
Summary of Significant Environmental Impacts and Mitigations

Navy Action		Vision 2000 Program Alternatives			
No Action	**Navy Disposal**	**Maximum Marine Terminal/Maximum Rail Terminal**	**Minimum Marine Terminal/Minimum Rail Terminal**	**Maximum Marine Terminal/Minimum Rail Terminal**	**Reduced Harbor Fill**
		areas represent only a fraction of the tern's foraging activity. *Mitigation 1.* The Port shall undertake informal discussions with the USFWS and the US Army Corps of Engineers to assure that terminal construction and dredging does not pose significant, adverse impacts on least tern foraging. To prepare for this consultation, the Port may conduct a least tern survey along the Inner Harbor Channel during their breeding season or turbidity studies to determine the effects of construction disturbance on tern feeding behavior. If, as a result of these studies, it is determined that the project could have a significant impact, specific mitigation measures will be implemented. The focus of the proposed mitigation is to minimize the turbidity associated with dredging activities and to minimize in-water construction activity during the nesting period of the least tern. The Port currently has in place, and requires implementation of, best management practices to control turbidity and to increase dredging efficiency. Appropriate management practices could include increasing cycle times, limiting the number of concurrent		mitigable. *Mitigation 2:* Mitigations would be the same as identified for the Maximum Marine/Maximum Rail Alternative. Implementing Mitigation 2 would reduce this impact to a level that is not significant. <u>*Impact 3: Removal of Eelgrass Beds*</u>. This impact is the same as that identified for the Maximum Marine/Maximum Rail Alternative. Construction of the proposed marine terminal would completely remove the Oakland Inner Harbor eelgrass bed. Filling the Oakland Middle Harbor could result in sedimentation of the Oakland Middle Harbor eelgrass bed. This impact is potentially significant and mitigable. This impact would occur in waters that are non-Navy property. *Mitigation 3.* Mitigations will be the same as identified for the Maximum Marine/Maximum Rail Alternative. Implementing Mitigation 3 would reduce this impact to a level that is not significant.	*Mitigation 2:* Mitigations would be the same as identified for the Maximum Marine/Maximum Rail Alternative. Implementing Mitigation 2 would reduce this impact to a level that is not significant. <u>*Impact 3: Removal of Eelgrass Beds*</u>. This impact is the same as that identified for the Maximum Marine/Maximum Rail Alternative. Construction of the proposed marine terminal would completely remove the Oakland Inner Harbor eelgrass bed. Filling the Oakland Middle Harbor could result in sedimentation of the Oakland Middle Harbor eelgrass bed. This impact is significant and mitigable. This impact would occur in waters that are non-Navy property. *Mitigation 3.* Mitigations will be the same as those identified for the Maximum Marine/Maximum Rail Alternative. Implementing Mitigation 3 would reduce this impact to a level that is not significant.

Table 2-7 ***(Continued)***
Summary of Significant Environmental Impacts and Mitigations

Navy Action		Vision 2000 Program Alternatives			
No Action	Navy Disposal	Maximum Marine Terminal/Maximum Rail Terminal	Minimum Marine Terminal/Minimum Rail Terminal	Maximum Marine Terminal/Minimum Rail Terminal	Reduced Harbor Fill
		dredging operations during least tern nesting season, or implementing engineering measures to reduce turbidity, such as silt curtains, or using appropriate dredging techniques. The proposed MHEA under the Maximum Marine/Maximum Rail Alternative is planned to include eelgrass habitat, submerged and intertidal on soft bottom habitat, and other biological enhancements that would provide spawning and *foraging habitat for fish species* that are preyed on by California least terns, such as Pacific herring, topsmelt, surf perch, gobies, and jacksmelt (Heib 1996). Establishing the MHEA would provide long-term mitigation for any short-term impacts. Implementing all or a combination of options under Mitigation 1 would reduce this impact to a level that would not be significant. *Impact 2: Loss of Burrowing Owl Habitat.* Development of Middle Harbor Park could remove potential burrowing owl habitat. If burrowing owls, a California Species of Special Concern, are found at the project site, *implementation of* the Maximum Marine/ Maximum Rail Alternative			

Table 2-7 *(Continued)*
Summary of Significant Environmental Impacts and Mitigations

Navy Action		Vision 2000 Program Alternatives			
No Action	**Navy Disposal**	**Maximum Marine Terminal/Maximum Rail Terminal**	**Minimum Marine Terminal/Minimum Rail Terminal**	**Maximum Marine Terminal/Minimum Rail Terminal**	**Reduced Harbor Fill**
		would result in displacement of this species. This impact is considered potentially significant and mitigable. *Mitigation 2.* The Port shall conduct a survey for burrowing owls in accordance with Fish and Wildlife Service and California Fish and Game guidelines prior to initiation of construction activity. If individuals or colonies of burrowing owls are identified at Middle Harbor Park, this area should be avoided, to the extent practical and feasible. If avoidance is not possible, a mitigation program consisting of relocating the birds to a suitable location would need to be developed. Burrowing owls may be relocated to a suitable location nearby, possibly within upland areas of the proposed Middle Harbor public access area. Relocation could require management, including predator control and food supplements. Implementing Mitigation 2 would reduce this potential impact to a not significant level. *Impact 3: Removal of Eelgrass Beds*. Construction of the proposed marine terminal would remove the approximately 45 square foot eelgrass bed within the Oakland Inner Harbor. Filling the			

Table 2-7 *(Continued)*
Summary of Significant Environmental Impacts and Mitigations

Navy Action		Vision 2000 Program Alternatives			
No Action	Navy Disposal	Maximum Marine Terminal/Maximum Rail Terminal	Minimum Marine Terminal/Minimum Rail Terminal	Maximum Marine Terminal/Minimum Rail Terminal	Reduced Harbor Fill
		Oakland Middle Harbor could result in sedimentation of the approximately 200 square foot Oakland Middle Harbor eelgrass bed. This impact is considered to be potentially significant and mitigable. The significance of this impact will be determined through consultation with appropriate resource agencies, including the US Army Corps of Engineers. This impact would occur in waters that are non-Navy property. *Mitigation 3*. The Port shall undertake informal consultation with appropriate resource agencies to determine if this potential impact is significant. If, as a result of this consultation, it is determined that the project could have a significant impact, mitigation measures will be implemented. Loss of the Oakland Inner Harbor eelgrass bed would be mitigated fully by the successful development of compensatory wetlands planned by the Port of Oakland for the MHEA. The Port has not arrived at a size for the area in which to attempt transplants; however, successfully establishing one acre would result in a mitigation ratio of more than 20:1 for the loss of the Oakland Inner Harbor			

Table 2-7 *(Continued)*
Summary of Significant Environmental Impacts and Mitigations

Navy Action		Vision 2000 Program Alternatives			
No Action	**Navy Disposal**	**Maximum Marine Terminal/Maximum Rail Terminal**	**Minimum Marine Terminal/Minimum Rail Terminal**	**Maximum Marine Terminal/Minimum Rail Terminal**	**Reduced Harbor Fill**
		channel bed. In addition, silt curtains may be used to prevent sedimentation of the Middle Harbor bed. Alternatively, the area around the bed may be marked off to prevent construction crews from depositing fill in areas that may adversely impact the eelgrass bed. Implementing Mitigation 3 would reduce the impact to a level that is not significant.			
Water Resources					
No significant impacts are expected	No impacts are expected	*Impact 1: Pollutants in Runoff and Adjacent Waters*. Use of the proposed marine terminal areas and rail terminal could introduce pollutants, including oil and grease, other hydrocarbons, various heavy metals, and other contaminants from transportation activities, into the runoff stream and adjacent bay waters. A well-designed facility incorporating BMPs, including those already developed by the Port for vehicle maintenance, could reduce the project's contribution of stormwater contamination to a not significant level. Therefore, this impact is considered potentially significant and mitigable through the incorporation of BMPs into project operations and possibly design, as well as effective elimination of non-stormwater discharges, as	*Impact 1: Pollutants in Runoff and Adjacent Waters*. Potential generation of water quality contaminants from use of the expanded marine terminal areas and new rail terminal could introduce pollutants including oil and grease, other hydrocarbons, various heavy metals, and other pollutants associated with transportation activities into the runoff stream. This impact is potentially significant and mitigable. This impact would be less under the Minimum Marine/Minimum Rail Alternative than under the Maximum Marine/Maximum Rail Alternative but would remain significant and mitigable. This impact applies to all areas of the site. *Mitigation 1.* The mitigation would be the same as that identified under the Maximum	*Impact 1: Pollutants in Runoff and Adjacent Waters*. As with the Maximum Marine/Maximum Rail Alternative, potential generation of water quality contaminants from use of the expanded marine terminal areas and new rail terminal could introduce pollutants into the runoff stream, including oil and grease, other hydrocarbons, various heavy metals, and other pollutants associated with transportation activities. Impacts on water quality from the Maximum Marine/Minimum Rail Alternative could be somewhat less than for the Maximum Marine/Maximum Rail Alternative, but would still be potentially significant and mitigable. *Mitigation 1.* Mitigation would	*Impact 1: Pollutants in Runoff and Adjacent Waters*. With acreages and operation levels similar to the Maximum Marine/Maximum Rail Alternative, potential generation of water quality contaminants from the expanded marine terminal areas and new rail terminal of the Reduced Harbor Fill Alternative could introduce pollutants, including oil and grease, other hydrocarbons, various heavy metals, and other pollutants associated with transportation activities into the runoff stream. These potentially significant impacts would be similar to, or slightly greater than, those of the Maximum Marine/Maximum Rail Alternative but mitigable. *Mitigation 1.* Mitigation would be the same as that identified

Table 2-7 *(Continued)*
Summary of Significant Environmental Impacts and Mitigations

Navy Action		Vision 2000 Program Alternatives			
No Action	**Navy Disposal**	**Maximum Marine Terminal/Maximum Rail Terminal**	**Minimum Marine Terminal/Minimum Rail Terminal**	**Maximum Marine Terminal/Minimum Rail Terminal**	**Reduced Harbor Fill**
		identified below. *Mitigation 1a.* The Port's stormwater pollution prevention program shall be expanded to include the entire project site. Applicable proposed uses in that area shall be inspected for compliance with the stormwater management program and the Port's BMPs. The Port, in conjunction with the Regional Water Quality Control Board, shall assist tenants with identifying and implementing appropriate BMPs. *Mitigation 1b.* All washwater generated from industrial operations should drain to the sanitary sewer system. The Port shall assist future tenants in retrofitting the stormdrain and sanitary sewer system, if necessary, and developing and implementing operational and facility BMPs for controlling stormwater quality consistent with their stormwater management program and stormwater pollution prevention plan (SWPPP). *Mitigation 1c.* The stormwater management conditions of Port tenants should include requirements for a spill response plan to mitigate the potential impacts of spills on water quality. Port leases with tenants should specify that all fueling and liquid material	Marine/Maximum Rail Alternative. Implementing Mitigation 1 would reduce this impact to a level that is not significant. *Impact 2: Potential Water Quality Degradation From Dredging Contaminated Material.* Dredging of the Oakland Middle Harbor and turning basin from the existing -35 feet mean lower low water (MLLW) to -42 feet could result in increased levels of suspended solids and contaminants, as well as reduced oxygen levels in the water column. Dispersal of contaminants may or may not be significant depending on the types and levels of contaminants present in the sediment, method of dredging, and isolation of the area to be dredged from receiving waters. This impact would be potentially significant and mitigable. The potential and extent of these impacts can only be determined after project-specific sediment testing has been conducted, a disposal or reuse site has been selected, and the dredging methods have been determined. *Mitigation 2.* This mitigation would be the same as identified under the Maximum Marine/Maximum Rail	be the same as identified under the Maximum Marine/Maximum Rail Alternative. Implementing Mitigation 1 would reduce these impacts to a level that is not significant. *Impact 2: Potential Water Quality Degradation From Dredging Contamination Material.* This alternative would include berth-front dredging along the Oakland Inner Harbor; however, filling in the Oakland Middle Harbor would be reduced substantially compared with the Maximum Marine/Maximum Rail Alternative. Similar to the Maximum Marine/Maximum Rail Alternative, dredging of the Oakland Inner Harbor could result in increased levels of suspended solids and contaminants, as well as reduced oxygen levels in the water column. Because the Maximum Marine/Minimum Rail Alternative involves substantially less fill than the Maximum Marine/Maximum Rail Alternative (about 35 acres versus about 59 acres), this impact would be less under the Maximum Marine/Minimum Rail Alternative. Dispersal of contaminants may or may not be significant depending on the types and levels of	for the Maximum Marine/Maximum Rail Alternative. Implementing Mitigation 1 would reduce this impact to a level that is not significant. *Impact 2: Potential Water Quality Degradation from Dredging of Contaminated Material.* Compared to the Maximum Marine/Maximum Rail Alternative, this alternative would result in substantially increased berth-front dredging along the Oakland Inner Harbor and reduced filling in the Oakland Middle Harbor. Dredging for this alternative could result in temporary increases in concentrations of suspended solids and reduced oxygen levels in the water column. Because the Reduced Harbor Fill Alternative involves substantially less fill than the Maximum Marine/Maximum Rail Alternative, this potentially significant impact would be less under the Reduced Harbor Fill Alternative and would be mitigable. *Mitigation 2.* Mitigation would be the same as identified under the Maximum Marine/Maximum Rail Alternative. Implementing Mitigation 2 would reduce this impact to a level that is not significant.

Table 2-7 *(Continued)*
Summary of Significant Environmental Impacts and Mitigations

Navy Action		Vision 2000 Program Alternatives			
No Action	**Navy Disposal**	**Maximum Marine Terminal/Maximum Rail Terminal**	**Minimum Marine Terminal/Minimum Rail Terminal**	**Maximum Marine Terminal/Minimum Rail Terminal**	**Reduced Harbor Fill**
		loading and unloading operations associated with truck or train operations shall be conducted at contained locations where any spilled liquids can be recovered before they enter the storm drain system. *Mitigation 1d.* Port leases with tenants should specify that rail and ship terminal employees shall be properly trained and equipped to respond to any spills of liquids that could enter the storm drain system. *Mitigation 1e.* Port leases with tenants should specify that all drum storage shall be indoors or in properly contained areas. *Mitigation 1f.* The Port could evaluate the availability of land during the design phase of the Vision 2000 project for grassy swales or other vegetative-type controls to allow stormwater to infiltrate into the ground rather than run off the site. Vegetative controls could be incorporated into public access, recreation, and landscaped areas. Implementing Mitigations 1a through 1f would reduce this impact to a level that is not significant relative to discharges from residential land uses. *Impact 2: Potential Water Quality Degradation from*	Alternative. Implementing Mitigation 2 would reduce this impact to a level that is not significant. *Impact 3: Potential Water Quality Degradation From Reuse or Disposal of Contaminated Materials.* The Port is considering several options available for the disposal or reuse of any contaminated material encountered during project dredging; these options are addressed in detail in Section 5.1.7. As described under the Maximum Marine/Maximum Rail Alternative, marine disposal of contaminated dredged sediments could contaminate receiving waters. Disposal of contaminated dredged sediments could also increase local turbidity and suspended sediments and decrease dissolved oxygen at marine disposal sites. These impacts would be potentially significant and mitigable. *Mitigation 3.* This mitigation would be the same as that described for the Maximum Marine/Maximum Rail Alternative. Implementing Mitigation 3 would reduce this impact to a level that is not significant. *Impact 4: Water Quality Degradation From Filling.*	contaminants present in the sediment, method of dredging, and isolation of the area to be dredged from receiving waters. This impact would be potentially significant and mitigable. The potential and extent of these impacts can only be determined after project-specific sediment testing has been conducted, a disposal or reuse site has been selected, and the dredging methods have been determined. *Mitigation 2.* Mitigation would be the same as described for the Maximum Marine/Maximum Rail Alternative. Implementation of Mitigation 2 would reduce these impacts to a level that is not significant. *Impact 3: Potential Water Quality Degradation From Reuse or Disposal of Contaminated Material.* Impacts associated with reuse or disposal of uncontaminated material would be similar under this alternative to those described for the Maximum Marine/Maximum Rail Alternative, but the amount of materials to be reused/disposed would be reduced. This impact could be potentially significant and mitigable. *Mitigation 3.* Mitigation would be the same as identified under the Maximum	*Impact 3: Potential Water Quality Degradation from Reuse or Disposal of Contaminated Material.* Impacts of reuse or disposal of contaminated material would be greater under this alternative than with the Maximum Marine/Maximum Rail Alternative because the amount of materials to be disposed of could be nearly doubled. This impact would be significant and mitigable. *Mitigation 3.* Mitigation would be the same as that identified for the Maximum Marine/Maximum Rail Alternative. Implementation of Mitigation 3 would reduce this impact to a level that is not significant. *Impact 4: Water Quality Degradation from Filing.* Filling of a portion of the Oakland Middle Harbor under this alternative would increase suspended solids and potentially release existing contaminants in sediments in those areas. The area to be filled would be reduced substantially compared with the Maximum Marine/Maximum Rail Alternative. This potentially significant and mitigable impact affects reversionary Navy property in the Oakland Middle Harbor.

Table 2-7 *(Continued)*
Summary of Significant Environmental Impacts and Mitigations

Navy Action		Vision 2000 Program Alternatives			
No Action	Navy Disposal	Maximum Marine Terminal/Maximum Rail Terminal	Minimum Marine Terminal/Minimum Rail Terminal	Maximum Marine Terminal/Minimum Rail Terminal	Reduced Harbor Fill
		Dredging Contaminated Material. Depending on the quality, quantity, and location of dredging and dredged material reuse or disposal sites, several environmental impacts may occur (specific impacts attributable to reuse or disposal of dredged material are discussed under Impact 3). These impacts include increased levels of suspended solids and contaminants, and reduced oxygen levels in the water column. The potential and extent of these impacts can only be determined after project-specific sediment testing has been conducted, a disposal or reuse site has been selected, and the dredging methods have been determined. Typically, dredged materials with elevated contaminants are tested for water column toxicity (suspended phase testing). In addition, contaminant concentrations expected in the water column can be modeled to determine if water quality objectives may be violated outside the dredging "zone." These models conservatively estimate that all the contaminants are soluble. Special chemical testing also can be done to determine the actual concentration of soluble contaminants. Sediments with soluble or high concentrations	Filling a portion of the Oakland Middle and Outer Harbors under this alternative would increase suspended sediments and the potential for releasing existing contaminants in sediments in those areas. Filling in the Oakland Middle Harbor would be reduced compared with the Maximum Marine/Maximum Rail Alternative; however, this would be mostly offset by increased filling in the Oakland Outer Harbor. This potentially significant and mitigable impact affects reversionary Navy property in the Oakland Middle Harbor and non-Navy Port-owned property in the Oakland Outer Harbor. *Mitigation 4.* This mitigation would be the same as that identified under the Maximum Marine/Maximum Rail Alternative. Implementing Mitigation 4 would reduce this impact to a level that is not significant.	Marine/Maximum Rail Alternative. Implementing Mitigation 3 would reduce these impacts to a level that is not significant. *Impact 4: Water Quality Degradation From Filling*. Filling a portion of the Oakland Middle Harbor under this alternative could increase suspended solids and reduce dissolved oxygen in that area. This impact would be reduced compared with the Maximum Marine/Maximum Rail Alternative. This potentially significant and mitigable impact affects reversionary Navy property in the Oakland Middle Harbor. *Mitigation 4.* Mitigation would be the same as that identified under the Maximum Marine/Maximum Rail Alternative. Implementing Mitigation 4 would reduce these impacts to a level that is not significant.	*Mitigation 4.* Mitigation would be the same as that identified under the Maximum Marine/Maximum Rail Alternative. Implementing Mitigation 4 would reduce this impact to a level that is not significant.

Table 2-7 *(Continued)*
Summary of Significant Environmental Impacts and Mitigations

Navy Action		Vision 2000 Program Alternatives			
No Action	**Navy Disposal**	**Maximum Marine Terminal/Maximum Rail Terminal**	**Minimum Marine Terminal/Minimum Rail Terminal**	**Maximum Marine Terminal/Minimum Rail Terminal**	**Reduced Harbor Fill**
		of contaminants may cause toxicity to animals in the water column near the dredging site. This could result in a potentially significant but mitigable impact. *Mitigation 2.* If, upon completion of dredged materials testing, contaminants are found to be soluble or at insoluble concentrations capable of causing unacceptable water column effects, the Port shall evaluate and adopt, as necessary, special precautions and measures prior to undertaking dredging. Typically, dredging contaminated sediments will require the use of special dredging equipment, such as an environmental or closed bucket. Contaminated material placed into a barge for transport are not permitted to overflow or to be filled beyond the level that may allow spillage during transport. Other dredging equipment is available, such as high solids slurry pumps, marine excavators, and silt curtains. The Port shall evaluate existing and new technologies for safely dredging contaminated sediments, if needed, after sediment testing is completed and suitability determinations are made by the appropriate regulatory agencies. The Port			

Table 2-7 *(Continued)*
Summary of Significant Environmental Impacts and Mitigations

Navy Action		Vision 2000 Program Alternatives			
No Action	Navy Disposal	Maximum Marine Terminal/Maximum Rail Terminal	Minimum Marine Terminal/Minimum Rail Terminal	Maximum Marine Terminal/Minimum Rail Terminal	Reduced Harbor Fill
		shall select and implement the appropriate dredging technology suitable to the site-specific conditions and in accordance with future permit requirements to be imposed by the appropriate regulatory agencies. Implementing Mitigation 2 would reduce the potential for this water quality degradation impact to a not significant level. *Impact 3: Potential Water Quality Degradation from Reuse or Disposal of Contaminated Material.* The Port is considering several options available for the disposal or reuse of any NUAD material encountered during project dredging. Since the primary environmental concern over NUAD material is biological effects, reusing material in an environment that isolates the contaminants from sensitive biological receptors would largely eliminate the concerns for the material. Confined Aquatic Disposal (CAD) is also a possible disposal and reuse option where contaminated sediments are contained and capped so they are not subject to disturbance. A further concern regarding the disposal and reuse of NUAD material is the potential for contaminant mobilization and			

Table 2-7 *(Continued)*
Summary of Significant Environmental Impacts and Mitigations

Navy Action		Vision 2000 Program Alternatives			
No Action	Navy Disposal	Maximum Marine Terminal/Maximum Rail Terminal	Minimum Marine Terminal/Minimum Rail Terminal	Maximum Marine Terminal/Minimum Rail Terminal	Reduced Harbor Fill
		migration into sensitive areas. *The ultimate decision for the* disposal or reuse of any NUAD material encountered during project dredging will be based on the following factors: (1) Volume of NUAD material; (2) Contaminant concentrations in the NUAD material (both soluble and insoluble); (3) Engineering qualities of the material; (4) Practicality of the disposal or reuse option; and (5) Disposal or reuse site studies to determine risks and benefits. An improperly designed and engineered CAD site can pose a significant impact to the environment. *Mitigation 3.* The Port shall prioritize NUAD material disposal so that construction reuse would be the first priority, followed by landfill disposal, and then CAD disposal. If upland NUAD disposal (including construction reuse and landfill disposal) is used, the following measures could apply: (1) Materials shall be tested prior to a final decision on NUAD material disposal being made; (2) Disposal of NUAD materials shall be done in a manner that prevents long-term contaminant migration from the materials into stormwater or ground water; (3) If CAD is selected for some or			

Table 2-7 *(Continued)*
Summary of Significant Environmental Impacts and Mitigations

Navy Action		Vision 2000 Program Alternatives			
No Action	Navy Disposal	Maximum Marine Terminal/Maximum Rail Terminal	Minimum Marine Terminal/Minimum Rail Terminal	Maximum Marine Terminal/Minimum Rail Terminal	Reduced Harbor Fill
		all of the NUAD materials, the following measures could apply: (a) The Port shall follow the joint EPA and COE guidance on design, engineering, testing, monitoring, and other studies required for locating and engineering a CAD site. (b) The Port shall set appropriate goals for the design of the CAD site. For example, the goal of never exceeding water quality standards in the overlying water from diffusion of contaminants through the cap may be an appropriate goal. In any circumstance, the incorporation of a CAD site into the design for enhanced habitat should not be allowed to diminish the habitat goals. Since there is more than adequate volume for a CAD site in Middle Harbor, the Port shall add additional safety factors into the design. Implement a CAD site only when the site is shown to be depositional and will remain depositional with the changed contour and circulation patterns. The Port shall commit to monitor and maintain the integrity of the site. Implementing Mitigation 3 would reduce this impact to a level that is not significant. *Impact 4: Water Quality Degradation From Filling.*			

Table 2-7 *(Continued)*
Summary of Significant Environmental Impacts and Mitigations

Navy Action		Vision 2000 Program Alternatives			
No Action	**Navy Disposal**	**Maximum Marine Terminal/Maximum Rail Terminal**	**Minimum Marine Terminal/Minimum Rail Terminal**	**Maximum Marine Terminal/Minimum Rail Terminal**	**Reduced Harbor Fill**
		Placing SUAD material in the aquatic environment (including in Middle Harbor for the creation of habitat) could cause elevated levels of suspended solids, dissolved sulfides, and decreases in dissolved oxygen levels. The potential and extent of this water quality impact can only be determined after project-specific sediment testing and biological analysis has been conducted. Specific fill impacts will be addressed through subsequent project-level environmental documentation. Once these analyses are completed, the appropriate methods and technologies for filling these areas can be developed in a manner that would reduce any impact to a not significant level. *Mitigation 4.* One mitigation option could be that areas to be filled along the Oakland Inner Harbor for marine terminal construction shall be diked off from surrounding receiving waters (except for an opening to permit barge access) prior to filling. If, upon completion of sediment testing and biological analyses, it is determined that proposed fill activities in the Middle Harbor could significantly degrade water quality, the Port shall evaluate and adopt, as necessary, special			

Table 2-7 *(Continued)*
Summary of Significant Environmental Impacts and Mitigations

Navy Action		Vision 2000 Program Alternatives			
No Action	Navy Disposal	Maximum Marine Terminal/Maximum Rail Terminal	Minimum Marine Terminal/Minimum Rail Terminal	Maximum Marine Terminal/Minimum Rail Terminal	Reduced Harbor Fill
		precautions and measures prior to undertaking filling. The Port shall select and implement the appropriate methods and technologies for filling the Middle Harbor suitable to site-specific conditions and in accordance with future permit requirements to be imposed by the appropriate regulatory agencies. Implementing Mitigation 4 would reduce this impact to a level that is not significant.			
Geology and Soils					
No significant impacts are expected	No impacts are expected	*Impact 1: Public Exposure to Earthquakes and Damage to Structures and Utilities from Ground Shaking*. ABAG studies suggest that amplification of seismic waves in the materials underlying the project site during a magnitude 7.1 earthquake centered on the northern segment of the Hayward Fault would produce ground shaking in the range of VIII to X on the Mercali intensity scale (ABAG 1996). This would cause moderate to extreme levels of damage to structures and utilities. In addition to severe damage to structures, violent earth movement could cause injuries or loss of life from falling objects, fires, or explosion from ruptured containers of flammable or explosive	*Impact 1: Public Exposure to Earthquakes and Damage to Structures and Utilities from Ground Shaking*. Seismic shaking would remain a potentially significant and mitigable impact to all areas of the site under the Minimum Marine/Minimum Rail Alternative. Because the area subject to impacts from ground shaking would be smaller, the magnitude of the project-related impacts could be smaller. As with the Maximum Marine/Maximum Rail Alternative, these impacts would include injury or loss of life, damage to structures and utilities, and potential for spills of hazardous materials. Since there would be less waterfront for the marine terminals proposed in the Minimum	*Impact 1: Public Exposure to Earthquakes and Damage to Structures and Utilities From Ground Shaking*. Seismic shaking would be a potentially significant and mitigable impact under the Maximum Marine/Minimum Rail Alternative. However, the reduced area of the project would result in a lower magnitude of the overall impact. *Mitigation 1.* Mitigation would be the same as for the Maximum Marine/Maximum Rail Alternative. Implementing Mitigation 1 would reduce this impact to a level that is not significant. *Impact 2: Damage to Shoreline Slopes, Foundations, Structures, and Utilities From*	*Impact 1: Public Exposure to Earthquakes and Damage to Structures and Utilities from Ground Shaking*. The impacts from ground shaking during a large earthquake under the Reduced Harbor Fill Alternative would be similar to those described for the Maximum Marine/Maximum Rail Alternative. The area covered by the project would be slightly less than that for the Maximum Marine/Maximum Rail Alternative, but the potential for damage would be about the same. This would be a potentially significant and mitigable impact. *Mitigation 1.* Mitigation measures to reduce the impacts from seismic shaking would be the same as those for the

Table 2-7 *(Continued)*
Summary of Significant Environmental Impacts and Mitigations

Navy Action		Vision 2000 Program Alternatives			
No Action	**Navy Disposal**	**Maximum Marine Terminal/Maximum Rail Terminal**	**Minimum Marine Terminal/Minimum Rail Terminal**	**Maximum Marine Terminal/Minimum Rail Terminal**	**Reduced Harbor Fill**
		materials and environmental damage from hazardous materials released from tanks or storage containers. This would be a significant and mitigable impact. *Mitigation 1a.* The final design of dikes and fills would be influenced by results of geotechnical studies currently underway. Design considerations should include reducing the potential for slope or ground failure, which should reduce potential damage to new structures, roads, and utilities. *Mitigation 1b.* New structures and facilities should be designed to meet the following objectives, in order of priority: preventing injuries and loss of life, such as from the catastrophic failure of structures or from fires; preventing environmental damage, such as from the rupture of storage tanks, containers, or utility lines; maintaining emergency services, such as access to the site by land and water; and minimizing construction and replacement cost. In order to meet the seismic design objectives stated above, some structures and facilities should be designed to meet the location-specific dynamic seismic design standards, which requires estimating ground	Marine/Minimum Rail Alternative than under the Maximum Marine/Maximum Rail Alternative (limited to the Oakland Middle Harbor and a short length of the Oakland Outer Harbor), the potential for spills from ground shaking would probably be somewhat less under the Minimum Marine/Minimum Rail Alternative. *Mitigation 1.* The mitigation measures for seismic shaking are the same as for the Maximum Marine/Maximum Rail Alternative. Implementation of Mitigation 1 would reduce this impact to a level that is not significant. *Impact 2: Damage to Shoreline Slopes, Foundations, Structures, and Utilities from Liquefaction.* The impacts from liquefaction under the Minimum Marine/Minimum Rail Alternative would be similar to those under the Maximum Marine/Maximum Rail Alternative. Based on the method of filling (hydraulic) and the nature of the fill sediments (silty sand), it is likely that most of the liquefaction potential in the area would be centered in the FISCO property. Liquefaction also could result in significant impacts in the newly-filled	*Liquefaction.* The impacts from liquefaction would be similar to those described for the Maximum Marine/Maximum Rail Alternative, except that no additional filled land would be created for the intermodal rail terminal. The area potentially affected by liquefaction impacts would be somewhat less than for the Maximum Marine/Maximum Rail Alternative because of the smaller amount of placed fill. This impact would be a potentially significant and mitigable impact. *Mitigation 2.* The mitigation measures for liquefaction are the same as those described for the Maximum Marine/Maximum Rail Alternative. Implementation of Mitigation 2 would reduce this impact to a level that is not significant. *Impact 3: Settlement.* The types and magnitudes of impacts from settlement would be similar under the Maximum Marine/Minimum Rail Alternative as for the Maximum Marine/Maximum Rail Alternative, but a smaller area would be affected. The Maximum Marine/Minimum Rail Alternative includes no new filled land for the rail terminal, reducing the area	Maximum Marine/Maximum Rail Alternative Implementing Mitigation 1 would reduce this impact to a level that is not significant. *Impact 2: Damage to Shoreline Slopes, Foundations, Structures, and Utilities from Liquefaction.* Similar to the Maximum Marine/Maximum Rail Alternative , liquefaction would remain a potentially significant and mitigable impact under the Reduced Harbor Fill Alternative. *Mitigation 2.* Mitigation measures to reduce the impacts from liquefaction would be the same as those described for the Maximum Marine/Maximum Rail Alternative. Implementing Mitigation 2 would reduce this impact to a level that is not significant. *Impact 3: Settlement.* Settlement would continue at a very slow rate in existing fill areas under existing loadings. New fills and structures that create additional loadings relative to existing loadings would result in renewed settlement and associated impacts similar to those described for the Maximum Marine/Maximum Rail Alternative. This would be a potentially significant and mitigable impact.

Table 2-7 *(Continued)*
Summary of Significant Environmental Impacts and Mitigations

Navy Action		Vision 2000 Program Alternatives			
No Action	**Navy Disposal**	**Maximum Marine Terminal/Maximum Rail Terminal**	**Minimum Marine Terminal/Minimum Rail Terminal**	**Maximum Marine Terminal/Minimum Rail Terminal**	**Reduced Harbor Fill**
		accelerations likely to occur at the site for earthquakes of a specified probability. *Mitigation 1c.* Facilities used for storing or handling hazardous materials should be designed and located so as to minimize the potential for releases in a large earthquake. A Spill Prevention, Control, and Countermeasures (SPCC) plan should be prepared for the facility or by individual tenant facilities and incorporated into the Port's hazard response plan. In addition, as individual project components are designed, the projects would undergo additional public environmental review. Implementing Mitigations 1a, 1b, and 1c would reduce this impact to a level that is not significant. *Impact 2: Damage to Shoreline Slopes, Foundations, Structures, and Utilities from Liquefaction.* Liquefaction is likely to occur locally throughout the project site in a major earthquake because the area is underlain by a shallow water table and loose sandy fill sediments. Liquefaction of placed materials could contribute to failure of portions of both the existing and new perimeter dikes, foundations or structures, railroad track beds,	Oakland Outer Harbor marine terminal unless the fill and placement method are designed to reduce the potential for liquefaction. This impact would be potentially significant and mitigable. *Mitigation 2.* The mitigation measures for liquefaction are the same as under the Maximum Marine/Maximum Rail Alternative. Implementing Mitigation 2 would reduce this impact to a level that is not significant. *Impact 3: Settlement.* Most of the potential settlement of the existing filled areas of the site has already occurred. Newly filled areas would be subject to renewed long-term settlement. The amount of settlement would probably not be large because the Bay Mud is not very thick beneath the site and because new loadings would not differ greatly from existing loadings. However, this would remain a potentially significant and mitigable impact for all areas of the site. Filled habitat in the Middle Harbor could also be significantly affected by settlement. *Mitigation 3.* Mitigation measures for soil settlement are the same as described for the Maximum Marine/Maximum Rail Alternative. Implementing	subject to settlement hazards. This would be a potentially significant and mitigable impact. *Mitigation 3.* Mitigation measures for soil settlement are the same as those for the Maximum Marine/Maximum Rail Alternative. Implementing Mitigation 3 would reduce these impacts to a level that is not significant. *Impact 4: Differential Settlement.* Differential settlement could occur in some areas of the site, as described under the Maximum Marine/Maximum Rail Alternative, and would remain a potentially significant and mitigable impact on roads, pavements, structures, and utilities. *Mitigation 4.* The mitigation measures for differential settlement are the same as those described for the Maximum Marine/Maximum Rail Alternative. Implementing Mitigation 4 would reduce these impacts to a level that is not significant.	*Mitigation 3.* Mitigation measures to reduce the significance of the impacts from settlement would be the same as those for the Maximum Marine/Maximum Rail Alternative. Implementing Mitigation 3 would reduce this impact to a level that is not significant. *Impact 4: Differential Settlement.* Impacts from differential settlement would be similar to those described for the Maximum Marine/Maximum Rail Alternative and would remain potentially significant and mitigable under the Reduced Harbor Fill Alternative. *Mitigation 4.* Mitigation measures would be the same as those described for the Maximum Marine/Maximum Rail Alternative. Implementing Mitigation 4 would reduce this impact to a level that is not significant.

Table 2-7 *(Continued)*
Summary of Significant Environmental Impacts and Mitigations

Navy Action		Vision 2000 Program Alternatives			
No Action	**Navy Disposal**	**Maximum Marine Terminal/Maximum Rail Terminal**	**Minimum Marine Terminal/Minimum Rail Terminal**	**Maximum Marine Terminal/Minimum Rail Terminal**	**Reduced Harbor Fill**
		and utilities. Liquefaction of materials underlying perimeter dikes could result in dike failure. Liquefaction of the soil underlying structures could result in damage to foundations supported by the soil. To the extent that normal best engineering practices do not require site-specific evaluation of seismic hazards or that existing slopes and foundation features are incorporated into the project, significant and mitigable impacts may still occur. *Mitigation 2.* The Port will perform geotechnical studies of the site, including an evaluation of the liquefaction potential of the existing fills and underlying Merritt Sand. Mitigation would be designed according to the recommendations of the geotechnical engineer. Among the mitigation options that may be considered to prevent damage to new structures are constructing structures on piles founded in the Merritt/Posey Sand and replacing existing fill or compacting new or existing fill materials for structures supported on a foundation at grade. Utilities could be fitted with flexible joints where appropriate to accommodate lateral stress. In addition, as individual project components	Mitigation 3 would reduce this impact to a level that is not significant. *Impact 4: Differential Settlement*. Differential settlement under the Minimum Marine/Minimum Rail Alternative could result in impacts similar to those described for the Maximum Marine/Maximum Rail Alternative. The magnitude of the impacts would be smaller due to the smaller project site but could still be a significant and mitigable impact. Differential settlement at the site is primarily a function of the spatial variation in thickness of the Bay Mud. Potential impacts would depend on the location and type of structure or foundation but would be mitigable. *Mitigation 4.* The mitigation measures for differential settlement are the same as those described for the Maximum Marine/Maximum Rail Alternative. Implementing Mitigation 4 would reduce this impact to a level that is not significant.		

Table 2-7 *(Continued)*
Summary of Significant Environmental Impacts and Mitigations

Navy Action		Vision 2000 Program Alternatives			
No Action	**Navy Disposal**	**Maximum Marine Terminal/Maximum Rail Terminal**	**Minimum Marine Terminal/Minimum Rail Terminal**	**Maximum Marine Terminal/Minimum Rail Terminal**	**Reduced Harbor Fill**
		are designed, the projects would undergo additional public environmental review. Implementing Mitigation 2 would reduce this impact to a level that is not significant. *Impact 3: Settlement*. Impacts of settlement are primarily economic and do not affect life safety. However, settlement may have adverse environmental effects, such as reducing the effectiveness of drainage systems. Most of the potential settlement of the fill materials in the project site, under existing loading conditions, has already occurred. But proposed placement of additional fill and loading from new structures will begin a new cycle of settlement in those areas. Filled habitat areas in the Middle Harbor may be sensitive to changes in surface elevation so that settlement of fills change the character of the habitat. Settlement impacts are considered potentially significant but mitigable. *Mitigation 3a.* Potential for settlement of fills will be evaluated in geotechnical studies of the site. Impacts of settlement would be addressed by some of the same measures used to mitigate for liquefaction. These could			

Table 2-7 *(Continued)*
Summary of Significant Environmental Impacts and Mitigations

Navy Action		Vision 2000 Program Alternatives			
No Action	Navy Disposal	Maximum Marine Terminal/Maximum Rail Terminal	Minimum Marine Terminal/Minimum Rail Terminal	Maximum Marine Terminal/Minimum Rail Terminal	Reduced Harbor Fill
		include, but are not limited to, compaction of fills and construction on pile foundations (Mitigation 2). Potential mitigation measures also include placing excess new fill in anticipation of the potential settlement so that the final ground surface elevation is adequate after settlement. In certain locations where capillary rise in clayey soils overlying a shallow water table could cause near-surface soils to become waterlogged, capillary barriers should be constructed beneath the foundation. As with Mitigations 1 and 2, the Port will rely on licensed geotechnical engineers to provide the ultimate design solutions that will be adopted as part of project-level environmental documentation. *Mitigation 3b.* Settlement and changes in surface elevation of the filled habitat area could be mitigated by replacing maintaining original elevations. However, placing new fill material might result in adverse consequences on established biota. The Port periodically will evaluate the habitat and will determine whether bathymetric changes are adverse, beneficial, or neutral with respect to the long-term objectives of the			

Table 2-7 *(Continued)*
Summary of Significant Environmental Impacts and Mitigations

Navy Action		Vision 2000 Program Alternatives			
No Action	**Navy Disposal**	**Maximum Marine Terminal/Maximum Rail Terminal**	**Minimum Marine Terminal/Minimum Rail Terminal**	**Maximum Marine Terminal/Minimum Rail Terminal**	**Reduced Harbor Fill**
		habitat and will take corrective action as needed. Implementing Mitigations 3a and 3b would reduce these impacts to a level that is not significant. *Impact 4: Differential Settlement*. Differential settlement can damage foundations, tilt or buckle structural supports, and misalign horizontal features, such as doorways, utility connections, or other rigid transitions. These are considered significant and mitigable impacts. Soils with a high shrink-swell potential, which are subject to volume changes associated with wetting and drying, can cause damage to roads and foundations similar to those caused by differential settlement. Soil shrink-swell potential is not expected to be a widespread concern but could cause localized impacts where clayey fill materials are present. These are also significant and mitigable impacts. *Mitigation 4.* Building design plans and details and other improvement plans will be reviewed by a geotechnical engineer to determine whether they are compatible with the geotechnical conditions of the site. Mitigation measures for differential settlement are			

Table 2-7 *(Continued)*
Summary of Significant Environmental Impacts and Mitigations

Navy Action		Vision 2000 Program Alternatives			
No Action	**Navy Disposal**	**Maximum Marine Terminal/Maximum Rail Terminal**	**Minimum Marine Terminal/Minimum Rail Terminal**	**Maximum Marine Terminal/Minimum Rail Terminal**	**Reduced Harbor Fill**
		generally the same as for liquefaction (Mitigation 2). As with Mitigations 2 and 3, the Port will rely on licensed geotechnical engineers to provide the ultimate design solutions that will be adopted as part of project-level environmental documentation. Implementing Mitigation 4 would reduce these impacts to a level that is not significant.			
Traffic and Circulation					
No significant impacts are expected	No impacts are expected	*Impact 1: Peak Hour Traffic at Local Intersections.* AM and PM peak hour traffic for the Maximum Marine/Maximum Rail Alternative would result in traffic congestion at the intersection of 3rd Street and Adeline Street. The level of service at this intersection would drop to LOS F during both the AM and PM peak hours. *Mitigation 1:* At the Middle Harbor Road/3rd Street Intersection, the required improvements would include restriping the east and westbound 3rd Street approaches. The restriping would convert the combination left/through lanes to left turn only. This modification would allow conversion of the existing split phasing to standard protected left turn phasing.	*Impact 1: Peak Hour Traffic at Local Intersections.* AM and PM peak hour traffic for the Minimum Marine/Minimum Rail Alternative would result in traffic congestion at the intersection of 3rd Street and Adeline Street. The level of service at this intersection would be LOS E during both the AM and PM peak hours. *Mitigation 1:* At the Middle Harbor Road/3rd Street Intersection, the required improvements would include restriping the east and westbound 3rd Street approaches. The restriping would convert the combination left/through lanes to left turn only. This modification would allow conversion of the existing split phasing to standard protected left turn phasing. These modifications would	*Impact 1: Peak Hour Traffic at Local Intersections.* AM and PM peak hour traffic for the Maximum Marine/Minimum Rail Alternative would result in traffic congestion at the intersection of 3rd Street and Adeline Street. The level of service at this intersection would drop to LOS F during both the AM and PM peak hours. *Mitigation 1:* At the Middle Harbor Road/3rd Street Intersection, the required improvements would include restriping the east and westbound 3rd Street approaches. The restriping would convert the combination left/through lanes to left turn only. This modification would allow conversion of the existing split phasing to standard protected left turn phasing.	*Impact 1: Peak Hour Traffic at Local Intersections.* AM and PM peak hour traffic for the Reduced Harbor Fill Alternative would result in traffic congestion at the intersection of 3rd Street and Adeline Street. The level of service at this intersection would drop to LOS F during both the AM and PM peak hours. *Mitigation 1:* At the Middle Harbor Road/3rd Street Intersection, the required improvements would include restriping the east and westbound 3rd Street approaches. The restriping would convert the combination left/through lanes to left turn only. This modification would allow conversion of the existing split phasing to standard protected left turn phasing.

Table 2-7 *(Continued)*
Summary of Significant Environmental Impacts and Mitigations

Navy Action		Vision 2000 Program Alternatives			
No Action	**Navy Disposal**	**Maximum Marine Terminal/Maximum Rail Terminal**	**Minimum Marine Terminal/Minimum Rail Terminal**	**Maximum Marine Terminal/Minimum Rail Terminal**	**Reduced Harbor Fill**
		These modifications would improve the level of service to LOS D during both the AM and PM peak hours, and would mitigate the traffic impact at this intersection to a not significant level.	improve the level of service to LOS D during the AM peak hour and LOS C during the PM peak hours, and would mitigate the traffic impact at this intersection to a not significant level.	These modifications would improve the level of service to LOS D during both the AM and PM peak hours and would mitigate the traffic impact at this intersection to a not significant level.	These modifications would improve the level of service to LOS D during both the AM and PM peak hours, and would mitigate the traffic impact at this intersection to a not significant level.
Air Quality					
Impact 1: Construction and Demolition. The No Action Alternative could result in a limited amount of construction activity on FISCO associated with on-site Port activities. No additional marine or rail terminal construction would occur. Nevertheless, there is the potential under the No Action Alternative for occasional periods of construction activity. Emissions associated with construction activities would be considered a significant and mitigable impact. *Mitigation 1.* The mitigation presented below represents a range of options available to the Port that may be selected to reduce this impact to a level that is not significant. These measures may be revised or additional measures may be formulated as mitigation during the next tier of environmental review. Implementing the following dust control measures would mitigate the impact of dust and PM_{10} emissions to a	No impacts are expected	*Impact 1: Transportation-Related Air Pollutant Emissions.* The Maximum Marine/Maximum Rail Alternative would result in increased auto, truck, rail, and ship activity at the Port. Compared to conditions in 2010 without the project, the Maximum Marine/Maximum Rail Alternative would result in a net increase of 52 tons per year of reactive organic compound emissions, 756 tons per year of nitrogen oxide emissions, 226 tons per year of carbon monoxide emissions, 181 tons per year of sulfur oxide emissions, and 114 tons per year of PM_{10} emissions. These net emission increases exceed the BAAQMD impact significance criteria of 15 tons per year for ozone and PM_{10} precursors, and thus represent a significant unmitigable air quality impact. *Mitigation 1.* No feasible mitigation measures have been identified that could reduce the	*Impact 1: Transportation-Related Air Pollutant Emissions.* The Minimum Marine/Minimum Rail Alternative would result in increased auto, truck, rail, and ship activity at the Port. As shown in Tables 5-9 and 5-10 in Section 5.1.10, the Minimum Marine/Minimum Rail Alternative would result in a net increase of 33 tons per year of reactive organic compound emissions, 396 tons per year of nitrogen oxide emissions, 147 tons per year of carbon monoxide emissions, 85 tons per year of sulfur oxide emissions, and 80 tons per year of PM_{10} emissions. These net emission increases exceed the BAAQMD impact significance criteria of 15 tons per year for ozone and PM_{10} precursors. Although these emission increases are less than those for the Maximum Marine/Maximum Rail Alternative, they still represent a significant unmitigable air quality impact.	*Impact 1: Transportation-Related Air Pollutant Emissions.* The Maximum Marine/Minimum Rail Alternative would result in increased auto, truck, rail, and ship activity at the Port. Emission increases would be slightly greater than for the Maximum Marine/Maximum Rail Alternative. As shown in Tables 5-9 and 5-10 in Section 5.1.10, the Maximum Marine/Minimum Rail Alternative would result in a net increase of 57 tons per year of reactive organic compound emissions, 825 tons per year of nitrogen oxide emissions, 250 tons per year of carbon monoxide emissions, 200 tons per year of sulfur oxide emissions, and 127 tons per year of PM_{10} emissions. These net emission increases exceed the BAAQMD impact significance criteria of 15 tons per year for ozone and PM_{10} precursors and thus represent a significant unmitigable air quality impact.	*Impact 1: Transportation-related Air Pollutant Emissions.* The Reduced Harbor Fill Alternative would result in increased auto, truck, rail, and ship activity at the Port. Emission increases would be slightly greater than for the Maximum Marine/Maximum Rail Alternative. As shown in Tables 5-9 and 5-10 in Section 5.1.10, the Reduced Harbor Fill Alternative would result in a net increase of 55 tons per year of reactive organic compound emissions, 796 tons per year of nitrogen oxide emissions, 237 tons per year of carbon monoxide emissions, 193 tons per year of sulfur oxide emissions, and 119 tons per year of PM_{10} emissions. These net emission increases exceed the BAAQMD impact significance criteria of 15 tons per year for ozone and PM_{10} precursors, and thus represent a significant unmitigable air quality impact. *Mitigation 1.* As discussed

Table 2-7 *(Continued)*
Summary of Significant Environmental Impacts and Mitigations

Navy Action		Vision 2000 Program Alternatives			
No Action	**Navy Disposal**	**Maximum Marine Terminal/Maximum Rail Terminal**	**Minimum Marine Terminal/Minimum Rail Terminal**	**Maximum Marine Terminal/Minimum Rail Terminal**	**Reduced Harbor Fill**
not significant level: (1) The area disturbed by clearing, earthmoving, or excavation activities should be minimized at all times; (2) All areas to be excavated or graded should be sufficiently watered to prevent excessive dust generation during excavation or grading operations; (3) All clearing, grading, earthmoving, and excavation activities should be halted during periods of sustained strong winds (hourly average wind speeds of 20 mph or greater); (4) Unpaved, inactive portions of the construction site such as portions of parking lots or the public access area should be seeded and watered to maintain a grass cover; (5) All exposed soil and sand stockpiles should be enclosed, covered, stabilized with soil binders or should be watered twice daily to control wind erosion; (6) All unpaved roadways, parking areas, and staging areas at construction sites should be treated with soil stabilizers or should be watered three times daily; (7) All unpaved active portions of the construction site should be watered twice daily or treated with dust control solutions as necessary to minimize windblown dust and dust generation by vehicle traffic; (8) Any petroleum-based dust		net emissions increases to less than 15 tons per year. Net emissions increases are dominated by emissions from trucks and cargo ships. The Port has no feasible way to control expected emissions from trucks, trains, or cargo ships. Emission calculations already assume that trip reduction programs will produce a 15 percent reduction in employee home-work trips and a ten percent in work-other trips. _Impact 2: Construction and Demolition_. The Maximum Marine/Maximum Rail Alternative would require significant amounts of construction activity and demolition of existing structures. Construction and demolition activities would be temporary sources of fugitive dust and vehicle emissions. If not property controlled, dust from construction and demolition activities could be a source of localized nuisance problems and could cause temporary violations of state and federal PM_{10} standards. This impact is considered significant and mitigable. *Mitigation 2*. The Port's implementation of the following dust control measures would mitigate the impact of dust and PM_{10} emissions to a	*Mitigation 1*. As discussed under the Maximum Marine/Maximum Rail Alternative, no feasible mitigation measures have been identified for this impact. _Impact 2: Construction and Demolition_. The Minimum Marine/Minimum Rail Alternative would have less total construction and demolition activity than the Maximum Marine/Maximum Rail Alternative. The required construction activity probably would occur over a shorter time than that required for the Maximum Marine/Maximum Rail Alternative. Nevertheless, the extent of construction activity during peak construction periods might be similar to that expected for the Maximum Marine/Maximum Rail Alternative. Consequently, air quality impacts from construction and demolition activities would be generally similar to those discussed for the Maximum Marine/Maximum Rail Alternative. *Mitigation 2*. The mitigation measures for construction dust are the same as for the Maximum Marine/Maximum Rail Alternative, Mitigation 2. Implementing Mitigation 2 would reduce this impact to a	*Mitigation 1*. As discussed under the Maximum Marine/Maximum Rail Alternative, no feasible mitigation measures have been identified for this impact.. _Impact 2: Construction and Demolition_. The Maximum Marine/Minimum Rail Alternative would have less total construction and demolition activity than the Maximum Marine/Maximum Rail Alternative but more than the Minimum Marine/Minimum Rail Alternative. The required construction activity probably would occur over a shorter time than required for the Maximum Marine/Maximum Rail Alternative. Nevertheless, the extent of construction activity during peak construction periods might be similar to that expected for the Maximum Marine/Maximum Rail Alternative. Consequently, air quality impacts from construction and demolition activities would be generally similar to those discussed for the Maximum Marine/Maximum Rail Alternative. *Mitigation 2*. The mitigation measures for construction dust are the same as for the Maximum Marine/Maximum Rail Alternative. Implementing	under the Maximum Marine/Maximum Rail Alternative, no feasible mitigation measures have been identified for this impact. _Impact 2: Construction and Demolition_. The Reduced Harbor Fill Alternative would have slightly less total construction and demolition activity than the Maximum Marine/Maximum Rail Alternative. The required construction activity probably would occur over a time similar to that required for the Maximum Marine/Maximum Rail Alternative. Consequently, air quality impacts from construction and demolition activities generally would be similar to those discussed for the Maximum Marine/Maximum Rail Alternative. *Mitigation 2*. The mitigation measures for construction dust are the same as for the Maximum Marine/Maximum Rail Alternative. Implementing Mitigation 2 identified for the Maximum Marine/Maximum Rail Alternative would reduce this impact to a not significant level.

Table 2-7 *(Continued)*
Summary of Significant Environmental Impacts and Mitigations

Navy Action		Vision 2000 Program Alternatives			
No Action	**Navy Disposal**	**Maximum Marine Terminal/Maximum Rail Terminal**	**Minimum Marine Terminal/Minimum Rail Terminal**	**Maximum Marine Terminal/Minimum Rail Terminal**	**Reduced Harbor Fill**
control products used on the site should meet BAAQMD regulations for cutback asphalt paving materials; (9) Paved portions of the construction site should be swept as necessary to control wind-blown dust and dust generation by vehicle traffic; (10) On-site vehicle speeds should be limited to 15 mph or less; and (11) Streets adjacent to construction sites and staging areas should be swept daily to remove accumulated dust and soil.		not significant level. (1) The area disturbed by clearing, earthmoving, or excavation activities should be minimized at all times; (2) All areas to be excavated or graded should be sufficiently watered to prevent excessive dust generation during excavation or grading operations; (3) All clearing, grading, earthmoving, and excavation activities should be halted during periods of sustained strong winds (hourly average wind speeds of 20 mph or greater); (4) Unpaved inactive portions of the construction site, such as portions of the parking lots or public access area, should be seeded and watered to maintain a grass cover; (5) All exposed soil and sand stockpiles should be enclosed, covered, are stabilized with soil binders or should be watered twice daily to control wind erosion; (6) All unpaved active portions of the construction site should be watered twice daily or treated with dust control solutions as necessary to minimize windblown dust and dust generation by vehicle traffic; (7) Any petroleum-based dust control products used on the site should meet BAAQMD regulations for cutback asphalt paving materials; (8) Paved portions of the construction site	not significant level.	Mitigation 2 would reduce this impact to a not significant level.	

Table 2-7 *(Continued)*
Summary of Significant Environmental Impacts and Mitigations

Navy Action		Vision 2000 Program Alternatives			
No Action	**Navy Disposal**	**Maximum Marine Terminal/Maximum Rail Terminal**	**Minimum Marine Terminal/Minimum Rail Terminal**	**Maximum Marine Terminal/Minimum Rail Terminal**	**Reduced Harbor Fill**
		should be swept as necessary to control wind-blown dust and dust generation by vehicle traffic; (9) On-site vehicle speeds should be limited to 15 mph or less; and (10)Streets adjacent to construction sites and staging areas should be swept daily to remove accumulated dust and soil.			
Noise					
No significant impacts are expected	No impacts are expected	No significant impacts are expected.	No significant impacts are expected.	No significant impacts are expected.	No significant impacts are expected.
Utilities					
No significant impacts are expected	No impacts are expected	No significant impacts are expected	No significant impacts are expected	No significant impacts are expected	No significant impacts are expected
Hazardous Materials and Waste					
No impacts are expected	No impacts are expected	*Impact 1: Polychlorinated Biphenyls*. Potential PCB-contaminated areas at FISCO were identified in previous investigations at the base and included IRP sites 04 and 19. Identifying and replacing PCB-containing electrical equipment has been completed on FISCO. No further remedial action or monitoring is likely to be needed after completing the remedial actions at these two sites. An inventory of PCB-containing electrical equipment and the potential impacts of PCB-containing equipment to the subsurface has not been	*Impact 1. Polychlorinated Biphenyls*. The discussion of potential significant and mitigable impacts resulting from exposure to PCBs is the same as described under the Maximum Marine/Maximum Rail Alternative. *Mitigation 1*. This mitigation would the same as that identified under the Maximum Marine/Maximum Rail Alternative. Implementing Mitigation 1 would reduce this impact to a level that is not significant. *Impact 2. Storage Tanks*. The discussion of potential significant and mitigable	*Impact 1. Polychlorinated Biphenyls*. The discussion of potential significant and mitigable impacts resulting from exposure to PCBs is the same as described under the Maximum Marine/Maximum Rail Alternative. *Mitigation 1*. This mitigation would the same as that identified under the Maximum Marine/Maximum Rail Alternative. Implementing Mitigation 1 would reduce this impact to a level that is not significant. *Impact 2. Storage Tanks*. The discussion of potential significant and mitigable	*Impact 1. Polychlorinated Biphenyls*. The discussion of potential significant and mitigable impacts resulting from exposure to PCBs is the same as that described under the Maximum Marine/Maximum Rail Alternative. *Mitigation 1*. This mitigation would the same as that identified under the Maximum Marine/Maximum Rail Alternative. Implementing Mitigation 1 would reduce this impact to a level that is not significant. *Impact 2. Storage Tanks*. The discussion of potential

Table 2-7 *(Continued)*
Summary of Significant Environmental Impacts and Mitigations

Navy Action		Vision 2000 Program Alternatives			
No Action	**Navy Disposal**	**Maximum Marine Terminal/Maximum Rail Terminal**	**Minimum Marine Terminal/Minimum Rail Terminal**	**Maximum Marine Terminal/Minimum Rail Terminal**	**Reduced Harbor Fill**
		conducted on Union Pacific, Southern Pacific, and other Port properties at the project site. Exposure to PCBs could pose a threat to human health and the environment and is considered a potentially significant and mitigable impact. Construction delays also could be encountered if areas of substantial PCB contamination are detected on any of these properties. *Mitigation 1.* The Port and applicable railroad company shall investigate and identify the extent of PCB-containing equipment at unsurveyed portions of the project site, if any, as part of subsequent project-level environmental documentation. The Port and applicable railroad company shall be responsible for ensuring compliance with applicable local, state, and federal regulations regarding the management and proper disposal of any identified PCB-containing equipment or PCB contamination. For example, PCB-containing equipment could be removed and replaced with non PCB-containing equipment. Depending on the results of these additional investigations, the Port and applicable railroad company shall undertake all reasonable	impacts resulting from exposure to USTs and ASTs is the same as that described under the Maximum Marine/Maximum Rail Alternative. *Mitigation 2.* This mitigation would the same as that identified under the Maximum Marine/Maximum Rail Alternative. Implementing Mitigation 2 would reduce this impact to a level that is not significant. *Impact 3. Oil/Water Separators and Waste Impoundments*. The discussion of potential significant and mitigable impacts resulting from exposure to OWSs and waste impoundments is the same as that described under the Maximum Marine/Maximum Rail Alternative. *Mitigation 3.* This mitigation would the same as that identified under the Maximum Marine/Maximum Rail Alternative. Implementing Mitigation 3 would reduce this impact to a level that is not significant. *Impact 4. Historic Land Use Activities*. The discussion of potential significant and mitigable impacts resulting from historic land use activities at the project site is the same as that described under the	impacts resulting from exposure to USTs and ASTs is the same as that described under the Maximum Marine/Maximum Rail Alternative. *Mitigation 2.* This mitigation would the same as that identified under the Maximum Marine/Maximum Rail Alternative. Implementing Mitigation 2 would reduce this impact to a level that is not significant. *Impact 3. Oil/Water Separators and Waste Impoundments*. The discussion of potential significant and mitigable impacts resulting from exposure to OWSs and waste impoundments is the same as that described under the Maximum Marine/Maximum Rail Alternative. *Mitigation 3.* This mitigation would the same as that identified under the Maximum Marine/Maximum Rail Alternative. Implementing Mitigation 3 would reduce this impact to a level that is not significant. *Impact 4. Historic Land Use Activities*. The discussion of potential significant and mitigable impacts resulting from historic land use activities at the project site is the same as that described under the	significant and mitigable impacts resulting from exposure to USTs and ASTs is the same as that described under the Maximum Marine/Maximum Rail Alternative. *Mitigation 2.* This mitigation would the same as that identified under the Maximum Marine/Maximum Rail Alternative. Implementing Mitigation 2 would reduce this impact to a level that is not significant. *Impact 3. Oil/Water Separators and Waste Impoundments*. The discussion of potential significant and mitigable impacts resulting from exposure to OWSs and waste impoundments is the same as that described under the Maximum Marine/Maximum Rail Alternative. *Mitigation 3.* This mitigation would the same as that identified under the Maximum Marine/Maximum Rail Alternative. Implementing Mitigation 3 would reduce this impact to a level that is not significant. *Impact 4. Historic Land Use Activities*. The discussion of potential significant and mitigable impacts resulting from historic land use activities at the project site is the same as

Table 2-7 *(Continued)*
Summary of Significant Environmental Impacts and Mitigations

Navy Action		Vision 2000 Program Alternatives			
No Action	**Navy Disposal**	**Maximum Marine Terminal/Maximum Rail Terminal**	**Minimum Marine Terminal/Minimum Rail Terminal**	**Maximum Marine Terminal/Minimum Rail Terminal**	**Reduced Harbor Fill**
		measures, as necessary, to ensure the public's health, safety, and well being and to reduce the risk of exposure to PCB-containing equipment consistent with the nature and extent of future industrial reuse activities. Implementing this mitigation would reduce this potentially significant impact to a not significant level. <u>Impact 2: Storage Tanks</u>. Four underground storage tanks (USTs) are not scheduled to be removed from FISCO prior to property transfer to the Port. These four USTs and all aboveground storage tanks (ASTs) located on FISCO property will become the responsibility of the Port upon transfer of FISCO. An assessment of current and historic USTs and ASTs and their potential impacts to the subsurface has not been conducted on Union Pacific, Southern Pacific, or other Port properties at the project site. Exposure to contamination caused by USTs or ASTs could result in a threat to human health and the environment and is considered a potentially significant and mitigable impact. Construction delays also may be encountered if areas of contamination from USTs or ASTs are detected on	Maximum Marine/Maximum Rail Alternative. This is considered a potentially significant and mitigable impact. *Mitigation 4*. This mitigation would the same as that identified under the Maximum Marine/Maximum Rail Alternative. Implementing Mitigation 4 would reduce this impact to a level that is not significant.	Maximum Marine/Maximum Rail Alternative. This is considered a potentially significant and mitigable impact. *Mitigation 4*. This mitigation would the same as that identified under the Maximum Marine/Maximum Rail Alternative. Implementing Mitigation 4 would reduce this impact to a level that is not significant.	that described under the Maximum Marine/Maximum Rail Alternative. This is considered a potentially significant and mitigable impact. *Mitigation 4*. This mitigation would the same as that identified under the Maximum Marine/Maximum Rail Alternative. Implementing Mitigation 4 would reduce this impact to a level that is not significant.

Table 2-7 *(Continued)*
Summary of Significant Environmental Impacts and Mitigations

Navy Action		Vision 2000 Program Alternatives			
No Action	Navy Disposal	Maximum Marine Terminal/Maximum Rail Terminal	Minimum Marine Terminal/Minimum Rail Terminal	Maximum Marine Terminal/Minimum Rail Terminal	Reduced Harbor Fill
		these properties. *Mitigation 2.* The Port and applicable railroad company shall assess the potential locations of historic or current USTs and ASTs located within unsurveyed portions of the project site as part of subsequent project-level environmental documentation. Preliminary subsurface investigations shall be conducted adjacent to identified USTs and ASTs that are located in areas where project construction is to take place. The Port and applicable railroad company shall be responsible for ensuring compliance with applicable local, state, and federal regulations regarding the removal and management of any identified tanks. Tank management procedures could include acceptable leak detection methods, spill and overfill protection, cathodic protection, secondary containment for hazardous waste tank systems, including the piping, and liability insurance. Depending on the results of these additional investigations, the Port and applicable railroad company shall undertake all reasonable measures, as necessary, to ensure the public's health, safety, and well being and to			

Table 2-7 *(Continued)*
Summary of Significant Environmental Impacts and Mitigations

Navy Action		Vision 2000 Program Alternatives			
No Action	**Navy Disposal**	**Maximum Marine Terminal/Maximum Rail Terminal**	**Minimum Marine Terminal/Minimum Rail Terminal**	**Maximum Marine Terminal/Minimum Rail Terminal**	**Reduced Harbor Fill**
		reduce the risk of exposure to USTs and ASTs, consistent with the nature and extent of future industrial reuse activities. Implementing this mitigation would reduce this potentially significant impact to a not significant level. *Impact 3: Oil/Water Separators and Waste Impoundments.* Several oil/water separators (OWSs) are located on FISCO, with one being identified as a possible source of contamination at IRP site 14. DOD is committed to all required contamination cleanup at FISCO resulting from Navy activities prior to property disposal. An assessment of current and historic OWSs and waste impoundments and their associated potential impacts to the subsurface has not been conducted on Union Pacific, Southern Pacific, or Port properties at the project site. There is a moderate to high likelihood that hazardous materials previously were disposed of in impoundments located on the project site. Exposure to contamination caused by OWS or waste impoundments could result in a threat to human health and the environment and is considered a potentially significant and			

Table 2-7 *(Continued)*
Summary of Significant Environmental Impacts and Mitigations

Navy Action		Vision 2000 Program Alternatives			
No Action	**Navy Disposal**	**Maximum Marine Terminal/Maximum Rail Terminal**	**Minimum Marine Terminal/Minimum Rail Terminal**	**Maximum Marine Terminal/Minimum Rail Terminal**	**Reduced Harbor Fill**
		mitigable impact. Construction delays also may be encountered if areas of contamination are detected on these properties as a result of OWSs or waste impoundments. *Mitigation 3.* The Port and applicable railroad company shall locate existing and historic OWSs and their potential impacts to human health and the environment shall be evaluated as part of subsequent project-level environmental documentation. Preliminary subsurface investigations shall be conducted adjacent to OWSs located in areas where construction is to be conducted and that have the potential to impact the subsurface with potentially hazardous substances. A detailed assessment of the location of historical waste impoundments shall be conducted for the project site. This investigation shall accurately identify the location of all waste impoundments formerly located onsite. Subsurface investigations designed to assess the nature and extent of chemical contaminants in the subsurface shall be conducted in the vicinity of all identified historical impoundments. In some cases, recommendations			

Table 2-7 *(Continued)*
Summary of Significant Environmental Impacts and Mitigations

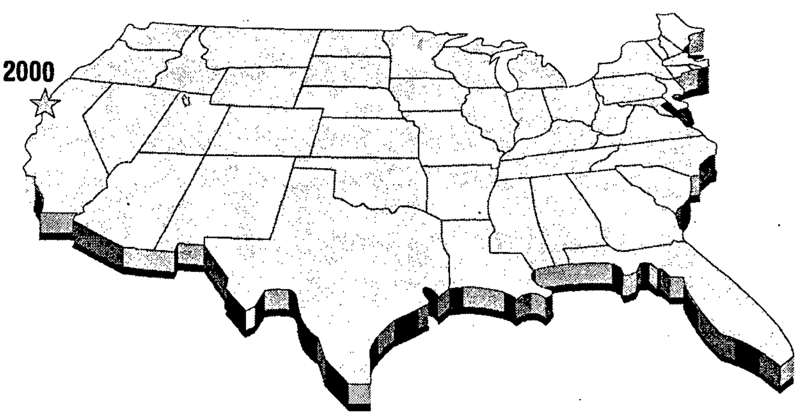
Navy Action		Vision 2000 Program Alternatives			
No Action	**Navy Disposal**	**Maximum Marine Terminal/Maximum Rail Terminal**	**Minimum Marine Terminal/Minimum Rail Terminal**	**Maximum Marine Terminal/Minimum Rail Terminal**	**Reduced Harbor Fill**
		from remedial risk assessment/feasibility studies may need to be incorporated *into the project design.* The Port and applicable railroad company shall be responsible for ensuring compliance with applicable local, state, and federal regulations regarding OWS and waste impoundment *management. Depending on* the results of additional investigations, the Port and applicable railroad company shall undertake all reasonable measures, as necessary, to ensure the public's health, safety, and well being and to reduce the risk of exposure to OWSs and waste impoundments, consistent with *the nature and extent of future* industrial reuse activities. Implementing this mitigation would reduce this potentially significant impact to a not significant level. *Impact 4: Historic Land Use Activities*. Historical uses of non-Navy property at the project site may have significantly contaminated surface soils and the subsurface portions of the site. There is a moderate likelihood that some historic activities at the railyard portions of the project site, such as refueling operations, have resulted in a release of			

Table 2-7 *(Continued)*
Summary of Significant Environmental Impacts and Mitigations

Navy Action		Vision 2000 Program Alternatives			
No Action	**Navy Disposal**	**Maximum Marine Terminal/Maximum Rail Terminal**	**Minimum Marine Terminal/Minimum Rail Terminal**	**Maximum Marine Terminal/Minimum Rail Terminal**	**Reduced Harbor Fill**
		contaminants into surface soils or the subsurface. Excavating, grading, or exposing on-site surface soils or subsurface materials could pose a threat to human health and safety and to the environment and is considered a potentially significant and mitigable impact. *Mitigation 4.* The Port and applicable railroad company shall assess the location of all historic industrial operations and structures. This assessment shall identify all areas with the potential to have used, store, or generated hazardous materials. Next, a subsurface investigation shall be conducted in areas of proposed excavation, grading, or other form of soil exposure and in areas (if any) that will be left unpaved. The Port and applicable railroad company shall be responsible for ensuring compliance with applicable local, state, and federal regulations regarding the management of hazardous materials and waste caused by historic land use activities. Depending on the results of these additional investigations, the Port and applicable railroad company shall undertake all reasonable measures, as necessary, to ensure the			

Table 2-7 *(Continued)*
Summary of Significant Environmental Impacts and Mitigations

Navy Action		Vision 2000 Program Alternatives			
No Action	Navy Disposal	Maximum Marine Terminal/Maximum Rail Terminal	Minimum Marine Terminal/Minimum Rail Terminal	Maximum Marine Terminal/Minimum Rail Terminal	Reduced Harbor Fill
		public's health, safety, and well being and to reduce the risk of exposure to hazardous materials and waste, consistent with the nature and extent of future industrial reuse activities. Implementing this mitigation would reduce this potentially significant impact to a not significant level.			



3.0 AFFECTED ENVIRONMENT

CHAPTER 3
AFFECTED ENVIRONMENT

This chapter contains a description of the existing conditions at the Vision 2000 project site, which includes FISCO, property owned by the Port of Oakland, Union Pacific Railroad, Southern Pacific Railroad, and portions of the Oakland Army Base. The Navy has no disposal authority over the Oakland Army Base property and any decision allowing Port use of this land would require separate Army approval. The information contained in this chapter will serve as background to identify and evaluate environmental impacts resulting from the disposal of the FISCO facility and implementation of the Port's Vision 2000 Program.

The setting discussion for each resource area identifies the region of influence (ROI) applicable to the specific resource area. An ROI is a geographic area in which impacts for a particular resource would likely occur. The ROI for a resource with regional impacts will be different from the ROI for a resource with localized impacts. Existing conditions are described for land use, socioeconomics, public services, cultural resources, visual resources, biological resources, water resources, geology and soils, traffic and circulation, air quality, noise, utilities, and hazardous materials and waste.

3.1 LAND USE

This section describes existing land uses at the project site and surrounding lands within at least one-half mile of the site. The ROI boundary for land use is defined to the north and west by the San Francisco Bay, to the south by Naval Air Station (NAS) Alameda, and to the north and east by West Grand Avenue, I-980, and the Howard Terminal, a marine terminal that is part of Port operations in the Oakland Inner Harbor. This ROI was identified because impacts to land uses should be considered in light of their consistency with existing uses and congruity with adjacent uses, such as those in the San Francisco Bay and West Oakland. A discussion of applicable land use plans and regulations is provided in Appendix E.

3.1.1 Land Uses at the Project Site

Land uses at the project site are mainly maritime, rail, and military. Outside the project site within the ROI, industrial, residential, government, schools, and commercial uses are predominant. Land at the project site is owned by the Navy, the Port, Union Pacific Railroad, Southern Pacific Railroad, and the Army. The project site includes nine areas referred to as Areas A through I (Figure 3-1). Table 3-1 identifies both the owner and the occupant of these nine areas. The following description of existing land uses is organized by these areas and focuses on general designations of uses within the areas.

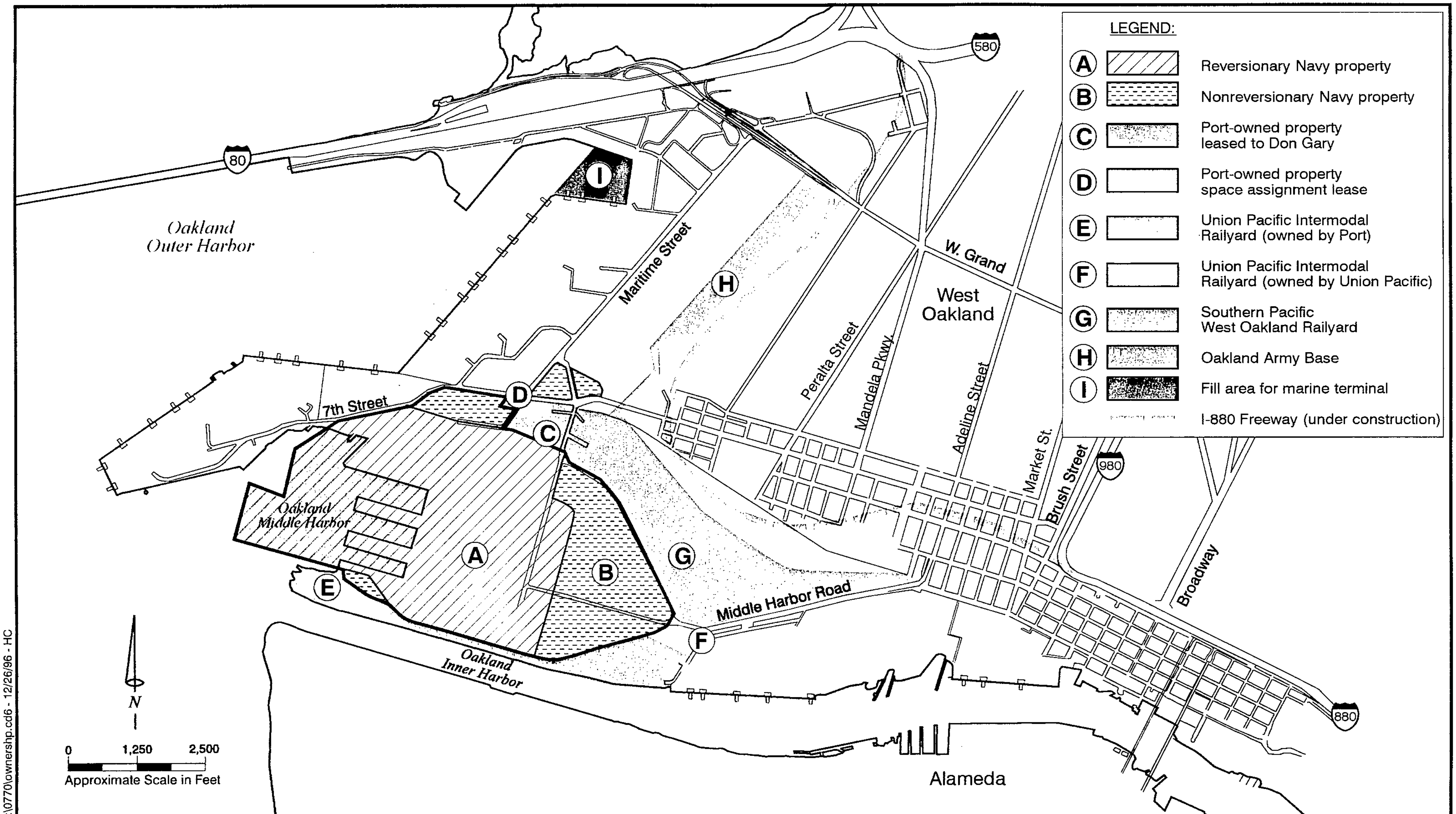
Table 3-1
Project Site Land Occupation

Area	Owner	Occupant	Acreage
A	US Navy (reversionary submerged)	Port of Oakland leases	102
A	US Navy (reversionary upland)	Port of Oakland leases	290
B	US Navy (nonreversionary)	Port of Oakland leases	136
C	Port of Oakland	Don Gary Investments, Ltd., leases	9
D	Port of Oakland	Various tenants lease	5
E	Port of Oakland	Union Pacific leases	90
F	Union Pacific	Union Pacific	15
G	Southern Pacific	Southern Pacific	133
H	US Army	Oakland Army Base	11
I	US Army, Port of Oakland	Marine Terminal Fill Area	27
TOTAL			818

Sources: US Navy 1995c, 1996a, and Andrews, R., March 24, 1996, personal communication

3.1.1.1 Area A: Reversionary Navy Land

Area A consists of the reversionary Navy land at FISCO and is bounded by the Oakland Middle Harbor to the west, 7th Street, nonreversionary Navy property, and Don Gary Investments, Ltd., leased property to the north, nonreversionary Navy property and 6th Street to the east, and the Union Pacific Intermodal Railyard to the south. This property is owned by the Navy and is leased, or will be leased, to the Port of Oakland. Area A is comprised of 392 acres, 102 of which are submerged in the Oakland Middle Harbor. Land use in Area A has been characterized by extensive military support facilities, including warehouses, office buildings, three military officers houses, and the Middle Harbor berths and wharf area. Pursuant to its lease with the Navy, the Port has the right to demolish existing structures on property it occupies.



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The project site has been subdivided into areas A through I for the purpose of evaluating alternatives.

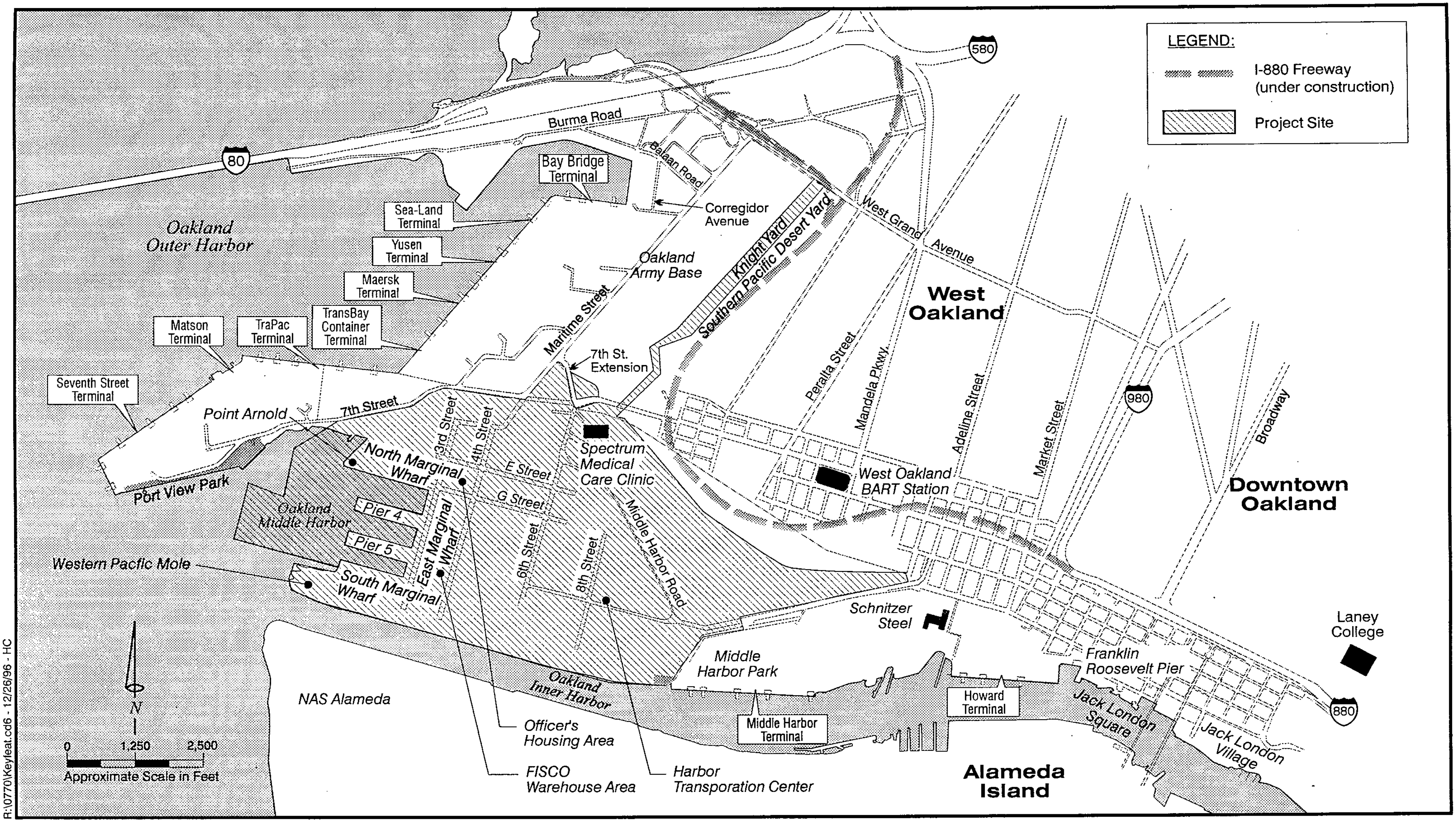
Source: Port of Oakland 1996

Proposed Project Site Subareas

Fleet & Industrial Supply Center Oakland
and Port of Oakland

Figure 3-1

Port of Oakland



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This figure shows some of the key features discussed throughout this report.

Key Features of the Project Site

Source: Port of Oakland 1996

Fleet & Industrial Supply Center Oakland
and Port of Oakland

Figure 3-2

Port of Oakland

The main warehouse area (Figure 3-2) is between 3rd Street and 6th Street and contains a series of buildings surrounded by paved surfaces and loading docks. The officers' housing area (Figure 3-2) and adjoining landscaped area are located in the warehouse area, bounded by E and G Streets between 3rd Street and 4th Street, and contain housing for the FISCO commanding officer, the FISCO executive officer, and the commanding officer of the Military Sealift Command. The FISCO wharves (North Marginal, East Marginal and South Marginal) form the eastern edge of the Oakland Middle Harbor and are penetrated by main Piers 4 and 5 (Figure 3-2).

A series of moles, or bermed railroad tracks extending into the water, were constructed near the project site in the late 19th and early 20th centuries, including a Southern Pacific mole at the northern end of FISCO, a Western Pacific (now Union Pacific) mole at the southern end of FISCO, and the Key System mole at the base of what is now the Bay Bridge. Construction of these moles was an integral part of the general improvements at Oakland Harbor.

3.1.1.2 Area B: Nonreversionary Navy Land

Area B consists of the nonreversionary Navy land at FISCO and is bounded by reversionary Navy property and 6th Street to the west, Middle Harbor Road to the north and east, and the Union Pacific Intermodal Railyard to the south. This property is owned by the Navy and is leased, or will be leased in the future, to the Port of Oakland. There are 136 acres in Area B. Land uses in Area B include general transportation support activities, including warehousing, container depot activities, loading, and container freight stations. As for Area A, the Port's lease with the Navy gives it the right to demolish existing structures.

The former FISCO railyard area (Figure 3-2) was located in Area B and was bounded by 6th and 8th Streets between Middle Harbor Road and the Union Pacific railyard to the south. In the past, the area along 6th Street was used for open laydown storage for miscellaneous metals and large bulk materials, including storage of bulk petroleum barrels. A railroad classification yard was located in the eastern part of this area, and rail tracks were used primarily for moving heavy bulk materials and steel plates from one area of FISCO to another. The railyard has not been used for the past 15 to 20 years. The Port has removed portions of the railyard and rocked the remaining ballast area for truck and container storage (Serventi, J., October 23, 1996, personal communication). Much of this area is now subleased by the Port to various clients for maritime- and transportation-related activities.

The portion of Area B on either side of the former railyard is occupied by the Port's Harbor Transportation Center (Figure 3-2), which provides space for warehousing, container depot activities, loading, and container freight stations in this area. It is comprised of several long low warehouses occupying blocks that are about 600 feet long and oriented north to south. In the past, the Port has subleased the warehouses with the least severe maintenance problems, but has

been demolishing warehouses in the area as open space needs increase (Andrews, R., October 23, 1996, personal communication).

3.1.1.3 Area C: Don Gary Investments, Ltd., Lease

Don Gary Investments, Ltd., leases nine acres of Port property near the intersection of Maritime and 7th Streets and bordered by 7th Street and other Port property to the north, the Southern Pacific property to the east, and FISCO to the south and west. The group holds the lease on the property until September 30, 2018, and subleases the property to different tenants that use the area for truck transporting activities (O'Rourke, T., July 9, 1996, personal communication).

3.1.1.4 Area D: Space Assignment Leasing

The Port owns five acres of property that it leases according to space needs, located south of 7th Street and transversed by the Maritime Street Overpass. The area currently is leased by Sea-Land, which operates a marine terminal in the Oakland Outer Harbor. Sea-Land uses the area for truck transportation support.

3.1.1.5 Areas E & F: Union Pacific

Union Pacific occupies 105 acres along the Oakland Inner Harbor on the southern edge of the project site and is bordered on the east by the Middle Harbor Terminal. Union Pacific leases 90 acres from the Port of Oakland (Area E) but owns the southeastern 15 acres (Area F). The Union Pacific lease on Area E expires in 2010 (Schwarz, C., October 23, 1996, personal communication). Area F includes track right-of-way along Middle Harbor Road (Andrews, R., October 23, 1996, personal communication). This 105-acre area is called the Union Pacific Intermodal Yard and consists of 15 yard tracks, three intermodal ramp tracks, three car repair tracks, and three locomotive storage tracks. The facilities also include tracks serving two shippers located on Area F (Port of Oakland 1995b).

The one-acre Middle Harbor Park is located near the southeastern end of the Union Pacific Intermodal Railyard near Area E. The Port of Oakland maintains Middle Harbor Park, which is part of the Vision 2000 Project Site although not part of Area F. The Port's park system is discussed in greater detail in Section 3.1.2.

3.1.1.6 Area G: Southern Pacific

The Southern Pacific West Oakland Railyard is an approximately 300-acre facility. The Vision 2000 Project Site includes 133 acres of this railyard (Area G). Area G is bounded by Middle Harbor Road to the south and west and other Southern Pacific property to the north and east. More information on Southern Pacific facilities is presented in Section 3.1.2.2.

The Occupational Medical Corporation of Oakland maintains the Spectrum Medical Care Clinic (Figure 3-2), Port of Oakland Branch, on the western side of

the Southern Pacific Railroad property at 2097 7th Street. This clinic is a tenant of the Southern Pacific Railroad. The facility provides medical care for non-life threatening injuries to the West Oakland community, including the project site.

3.1.1.7 Area H: Oakland Army Base

The Oakland Army Base covers 422 acres, 11 of which are proposed for inclusion in the project site under the Maximum Marine/Minimum Rail Alternative (Area H). Area H runs southwest to northeast along Southern Pacific railroad tracks up to West Grand Avenue. The portion of the Oakland Army Base covered by Area H includes the Knight Railyard (Figure 3-2) and possibly some buildings. The Navy has no disposal authority over the Oakland Army Base property and any decision allowing Port use of this land would require separate Army approval.

3.1.1.8 Area I: Fill Area for Marine Terminal

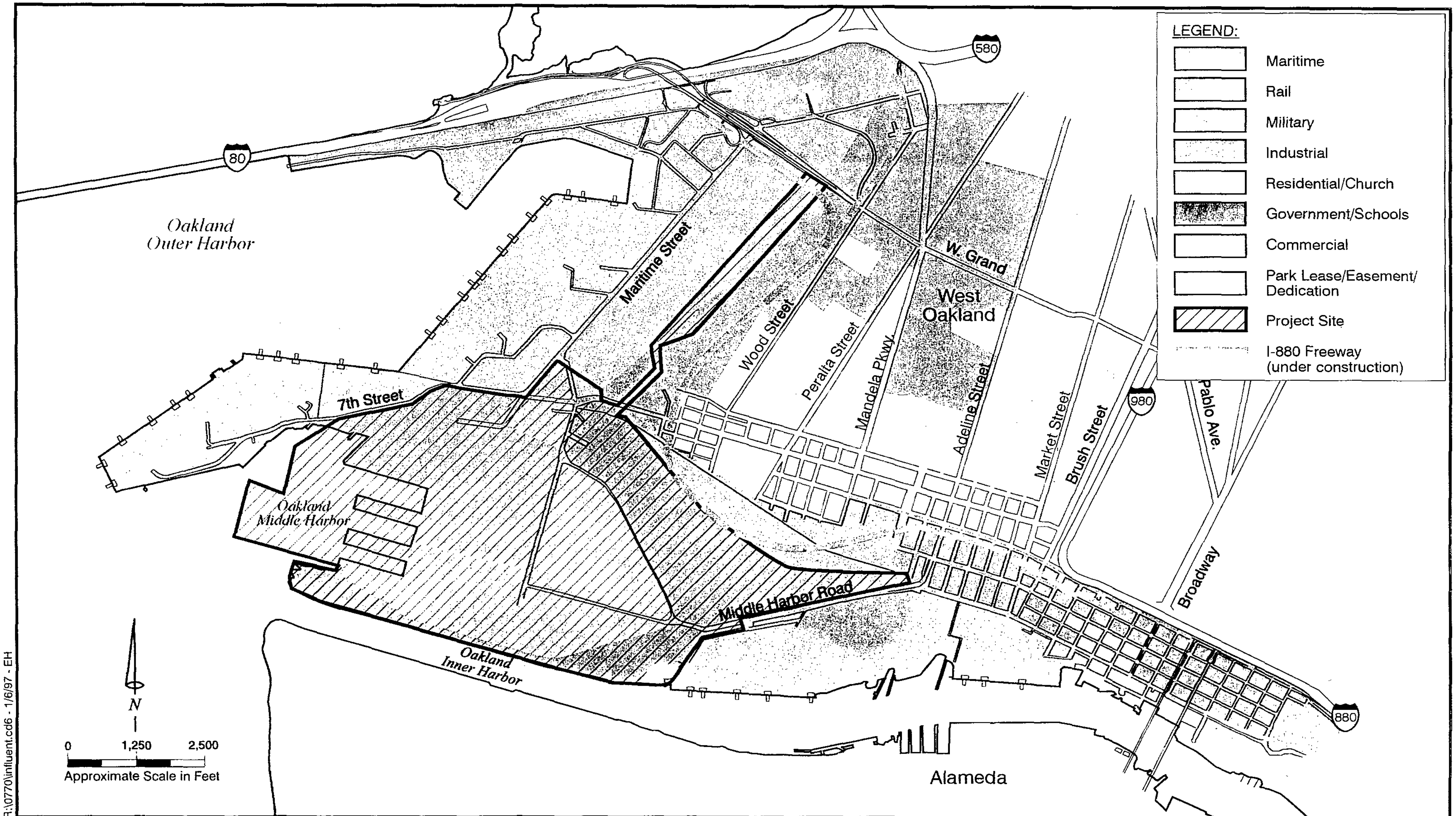
Area I is a 27-acre submerged area in front of the Bay Bridge Terminal that would be filled for marine terminal expansion under the Minimum Marine/Minimum Rail Alternative. The Bay Bridge Terminal includes Berths 7 through 10. Berth 10 and the adjacent land area are owned by the Port. Army Berths 7 through 9 next to Berth 10, along with all the Army property west of Maritime Street, are owned by the Oakland Army Base. The Navy has no disposal authority over the Oakland Army Base property and any decision allowing Port use of this land would require separate Army approval. Berths 7 through 10 are either too short or have inadequate yard space behind them to accommodate modern container vessels (Andrews, R., October 23, 1996, personal communication).

3.1.2 Surrounding Land Use

The following sections present land uses in the ROI outside the project site boundary. The surrounding land use activities are organized according to their proximity to the site. Port and Oakland Army Base facilities outside project site boundaries and West Oakland neighborhoods are the closest areas to the project site in the ROI. NAS Alameda also is inside the ROI, but it is located across the Oakland Inner Harbor. In addition, uses of the San Francisco Bay and the surrounding harbor areas are presented. The existing land uses at the project site and in the surrounding ROI are shown in Figure 3-3. Figure 3-4 shows land ownership and boundaries throughout the project site and surrounding area.

3.1.2.1 Port of Oakland

The Port occupies 19 miles of waterfront with more than 680 acres of marine terminal facilities and active support areas (Cao, P., October 23, 1996, personal communication). Port property is located along the Oakland Inner and Outer Harbors north and south of the project site and includes marine facilities, Jack London Square, and various parks. Port property south of the project site includes the Oakland International Airport.



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Land uses at the project site are mainly maritime, rail, and military. The ROI has industrial, residential, government/schools, and commercial uses. Land uses in the ROI are general.

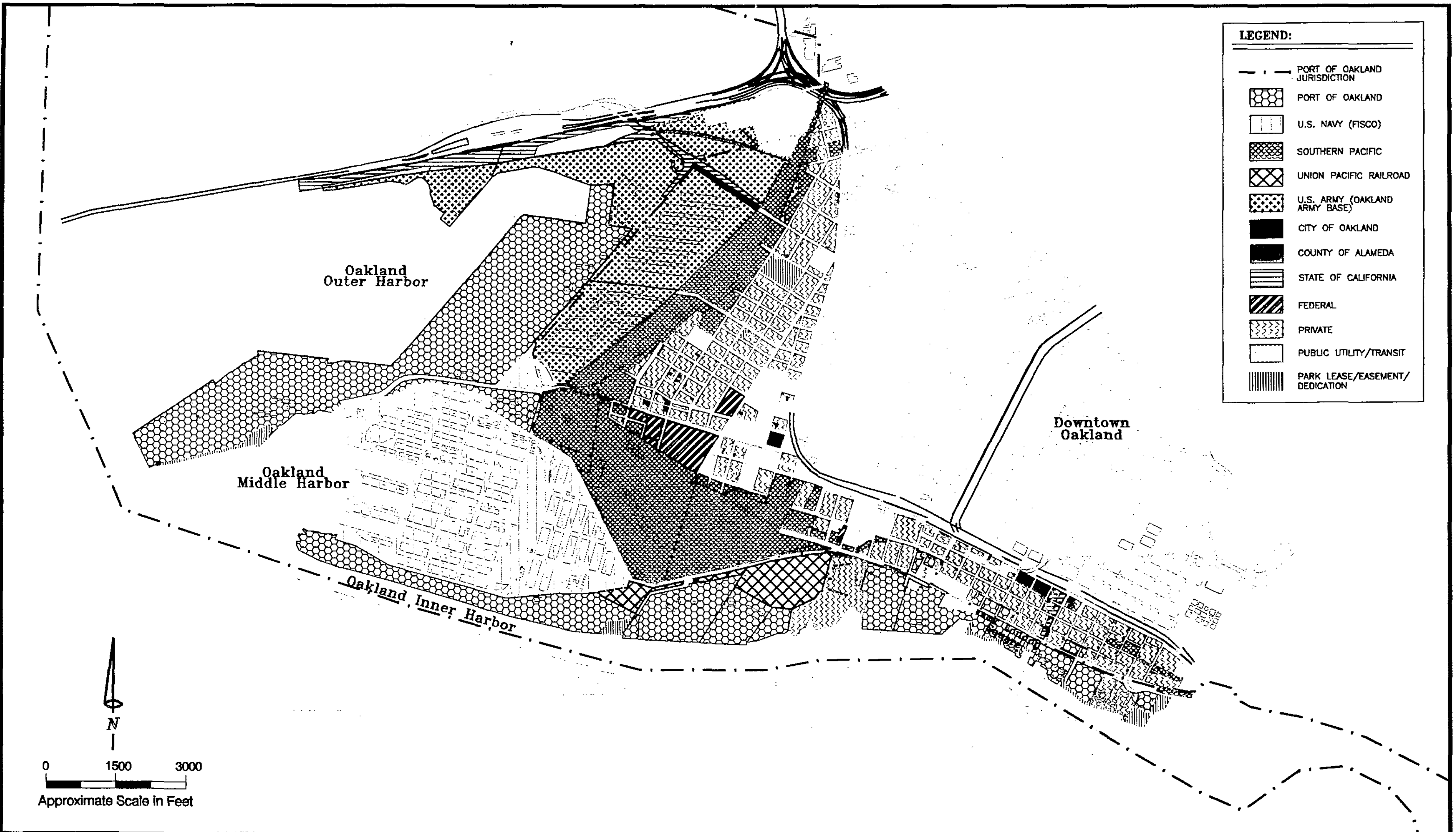
Source: Port of Oakland 1996

Land Uses at the Project Site and Region of Influence

Fleet & Industrial Supply Center Oakland and Port of Oakland

Port of Oakland

Figure 3-3



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Most of the land at the project site is owned by the Port, the Navy, and the railroads. Other land owners in the ROI include the Army, the City of Oakland, Alameda County, the State of California, and private landowners.

Land Ownership Boundaries at the Project Site and the Region of Influence

Source: Port of Oakland 1996

Fleet & Industrial Supply Center Oakland
and Port of Oakland

Figure 3-4

Port of Oakland

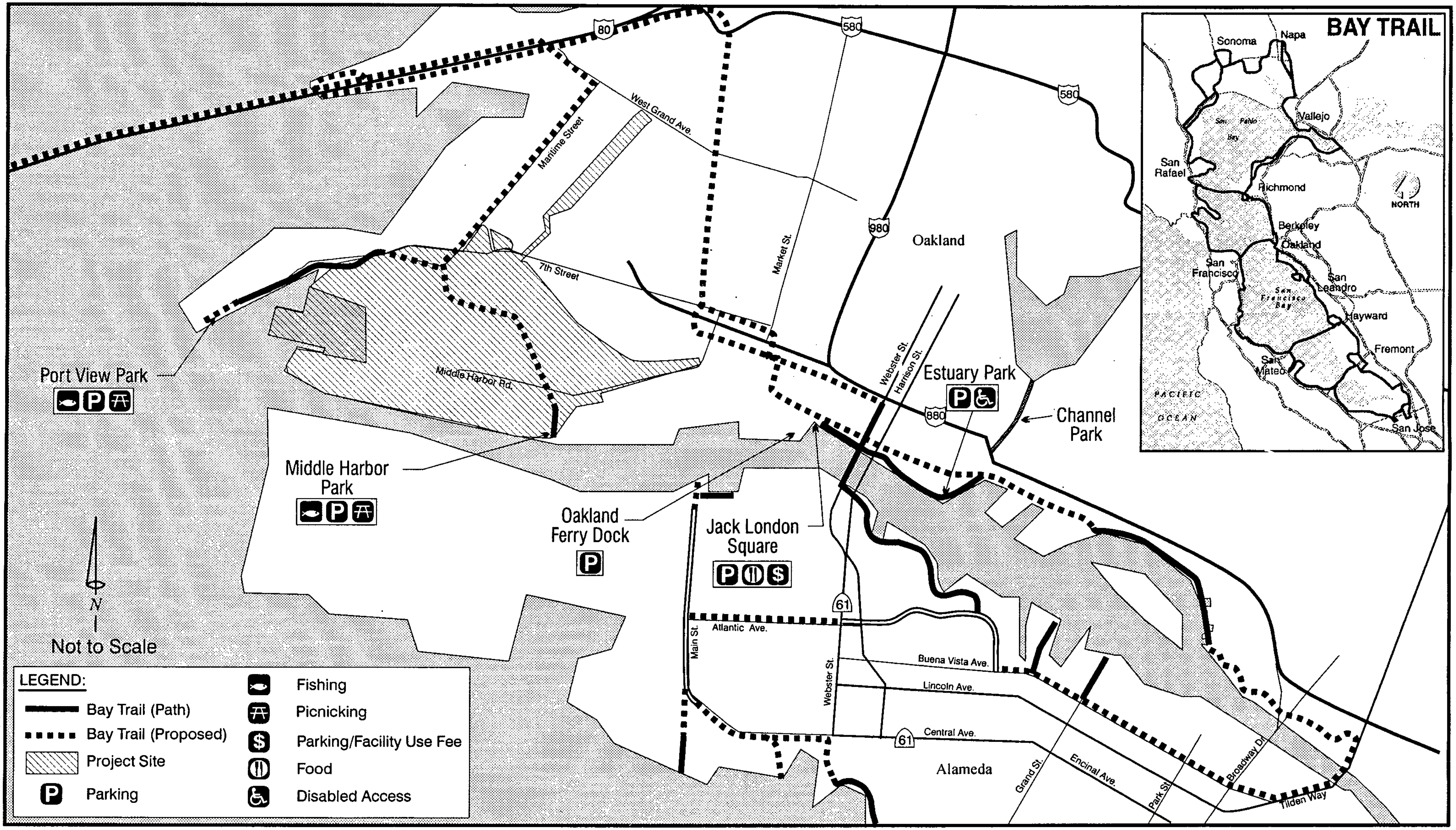
The Port's marine facilities include nine container terminals and two break-bulk terminals. These facilities are organized into the Oakland Outer Harbor and Oakland Inner Harbor terminal areas. The Oakland Outer Harbor terminals include the Bay Bridge, Sea-Land, Yusen, Maersk Line, TransBay Container, TraPac, Matson, and Seventh Street Marine Container Terminals. The Oakland Inner Harbor terminals include the Middle Harbor, Howard, and Ninth Avenue Terminals (Brady and Associates 1994). All of this area is used for maritime-related, cargo shipping activities (Figure 3-2).

Jack London Square, a 12-block area along the Port's waterfront, is located approximately one and one-half miles southeast of FISCO (Figure 3-2). Jack London Square has been developing over the past 50 years from a maritime/industrial area into a commercial/office and recreation/entertainment center. A mix of uses is located here, including retail stores, restaurants, offices, a television studio, a train station, marinas, hotels, cinemas, and other uses. The Franklin Roosevelt Pier is at the west end of Jack London Square (Figure 3-2), and the Alameda-Oakland Ferry operates from the foot of this pier. This area is now developing into a historic ship basin.

Middle Harbor Park is located between the Middle Harbor Terminal and the Union Pacific Intermodal Yard. The four-acre Port View Park was destroyed by the Loma Prieta earthquake in 1989 but was reconstructed and expanded on the southeast side of 7th Street, near the Seventh Street Marine Container Terminal. Estuary Park is located approximately two miles east of the project site and is bounded by Portobello residences, the Embarcadero, the Oakland Inner Harbor, and Lake Merritt Channel. Channel Park lies on the north side of the Embarcadero opposite Estuary Park and extends from Alice Street at Laney College to Lake Merritt. Middle Harbor, Port View, and Estuary Parks are owned by the Port. Estuary Park land is leased to the City of Oakland, which operates and maintains that park. The City of Oakland also owns and operates Channel Park. These parks are proposed as stops along the San Francisco Bay Trail, a planned 400-mile recreational trail system around the shoreline of San Francisco and San Pablo Bays. Approximately 170 miles of the planned 400-mile trail have been completed. Figure 3-5 shows the proposed and existing portions of the trail through the site (ABAG 1994).

3.1.2.2 Southern Pacific Facilities

The Southern Pacific facilities in the project site area are dominated by its West Oakland Yard (Figure 3-2). The West Oakland Yard is the main yard of the Southern Pacific facility. The West Oakland Yard includes a conventional flat switching yard, locomotive and car repair facilities, and Southern Pacific's intermodal facility. When construction to accommodate the I-880 Cypress Freeway is complete in 1997, the flat switching yard will have 27 tracks totaling 92,000 feet in length, two new switching leads, and three new support tracks. It also will have two one-spot car repair tracks and one load shifter track. The two



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The San Francisco Bay Trail is a planned 400-mile recreation trail system around the San Francisco and San Pablo Bay shorelines. Approximately 170 miles of the trail have been completed.

Source: ABAG 1996

San Francisco Bay Trail

Fleet & Industrial Supply Center Oakland
and Port of Oakland

Port of Oakland

Figure 3-5

repair tracks total about 4,500 feet, and the load shifter is about 1,300 feet in length. The West Oakland Terminal office building is at 7th and Bay Streets, not far from the Southern Pacific locomotive maintenance facility. This building contains wash and locker facilities for crews. Yardmasters and crew wash and locker buildings are also located near the flat switching yard (Port of Oakland 1995a).

An extension of the Southern Pacific West Oakland Railyard is the Desert Yard, a series of railroad tracks located north of 7th Street and east of the Oakland Army Base (Figure 3-2). Caltrans is funding reconstruction of this yard to accommodate the relocation of the I-880 Cypress Freeway. Upon completion, the Desert Yard will extend from 7th Street to Emeryville and will have two 10,000-foot tracks, and three 5,000-foot tracks. There are no physical structures at the Desert Yard site (Port of Oakland 1995b).

3.1.2.3 Oakland Army Base

The Oakland Army Base, located adjacent to and extending northeast of FISCO, is the headquarters for the Military Traffic Management Command Western Area (MTMCWA). MTMCWA's mission is to provide military ocean marine terminals, to transport defense-related cargo, to maintain berths for Military Sealift Command, and to monitor worldwide personal property movement of household goods. Some of the major land uses in support of this mission include berths, warehouses, storage areas, ship operations facilities, vehicle maintenance facilities, and military housing (Foster Wheeler 1996). In addition to Army activities, the Port leases 63 acres of the Oakland Army Base, which, in turn, it has subleased for operation of the Bay Bridge Terminal.

The BRAC Commission included the 422-acre Oakland Army Base on the 1995 Base Closure List. According to base closure regulations, the shutdown of military operations must begin by July 13, 1997, and all military operations must cease by July 13, 2001. The Navy has no disposal authority over the Oakland Army Base property and any decision allowing Port use Army property would require separate Army approval.

3.1.2.4 City of Oakland

The area north and east of the project site is the community of West Oakland. West Oakland is separated from the project site by the Southern Pacific West Oakland Yard and the relocated Cypress Freeway. The land use pattern in this neighborhood comprises a mix of uses, including residential, governmental, commercial, and industrial in close proximity to each other. To the east and north is a significant amount of land used for roadways that serve the site. Major streets include Middle Harbor Road, Maritime Street, and 7th Street. Interstates 80, 580, 980, and 880 are located to the north and east of the site. The new I-880 Cypress Freeway realignment is being built on the northeast side of the Southern Pacific West Oakland Railyard. The nearest nonmilitary housing is located northeast of 7th Street and east of Pine Street within the West Oakland

neighborhood. Single-family residences are located among a mix of uses, including churches, schools, office space, and industrial and commercial buildings (Port of Oakland and US Navy 1995).

3.1.2.5 Schnitzer Steel Property

Schnitzer Steel is located to the east of the Middle Harbor Terminal (Figure 3-2). The site is owned by Schnitzer Steel, but the Port owns portions of the submerged land along the Oakland Inner Harbor adjacent to the property.

3.1.2.6 NAS Alameda/FISC Annex

NAS Alameda occupies the western third of the island of Alameda, across the Oakland Inner Harbor from the project site. The facility includes an airfield, a seaport, a seaplane lagoon, aircraft and ship maintenance facilities, housing, and industrial, retail, warehouse, recreational, and special-purpose facilities. The FISC Alameda Facility and FISC Alameda Annex located adjacent to NAS Alameda comprise 176 acres of warehouses, open space storage, and administrative buildings. All three facilities have been identified for closure by the BRAC Commission. NAS Alameda will close in April 1997 while the FISC Alameda Facility and FISC Alameda Annex will close in September 1998 (Bonino, M., October 23, 1996, personal communication). A reuse plan has been proposed by the Alameda Redevelopment and Reuse Authority. An EIS/EIR is being prepared to evaluate the environmental effects of proposed new land uses at NAS Alameda.

3.1.2.7 Surrounding Waters

The project site is surrounded by San Francisco Bay and the harbor channel system composed of the Oakland Outer, Middle, and Inner Harbors. The Oakland Outer and Middle Harbors are located to the northwest and north of the project site, respectively. The Oakland Inner Harbor is an approximately 600-foot wide, seven mile long estuary separating the project site and Oakland from NAS Alameda. San Francisco Bay and harbor channels receive heavy use by both commercial and recreational boats and ships.

3.2 SOCIOECONOMICS

This section describes the regional socioeconomic setting. Socioeconomic conditions addressed include population, income, employment, and housing. Background on environmental justice parameters also is presented.

The ROI for socioeconomic impacts varies, depending on the type of impact being analyzed. For population, income, employment, and housing, this EIS/EIR addresses impacts for the counties of Alameda, Contra Costa, and San Francisco. This three-county region was selected because an estimated 80 percent of all persons directly employed through the Port of Oakland's maritime activities reside in these counties (Port of Oakland 1990). Environmental justice impacts are examined only for the West Oakland community because this area would have the greatest exposure to any direct environmental impacts that result from implementation of any of the project alternatives.

Socioeconomic conditions are described for the base year of 1990, the year that the most consistent and reliable sources of comparable socioeconomic data are available. This is also the year that represents the highest historic levels of Navy employment on FISCO. Table 3-2 summarizes information that is referred to throughout this section.

Table 3-2
Comparison of Existing Socioeconomic Conditions, Three Study Area Counties, City of Oakland and West Oakland, 1990

	Alameda County	Contra Costa County	City & County of San Francisco	City of Oakland	West Oakland
Population	1,276,702	803,732	723,959	372,242	24,188
Percent Minority (non-Caucasian)	40	24	46	67	91
Per capita income	$17,547	$20,748	$19,695	$14,676	$7,763
Percent below poverty	11	7	13	19	36
Percent unemployed	6	5	6	10	20
Median value of owner-occupied homes	$225,300	$219,400	$298,900	$117,400	$101,871

Source: US Department of Commerce, Bureau of Census 1990

Appendix F presents detailed information about socioeconomic conditions in the Bay Area, the three-county area, the City of Oakland, and the West Oakland community. Appendix F also examines growth trends (1980-1990) and projections (1990-2010) for each of these jurisdictions. Most of the socioeconomic data is derived from two main sources, the US Department of Commerce 1990 census and the Association of Bay Area Governments (ABAG) Projections 94, although other sources also are used, including field research, State Economic Development Department and Department of Finance, the US Navy, the Port of

Oakland, the City of Oakland, and the Coalition for West Oakland Revitalization (CWOR).

3.2.1 Population

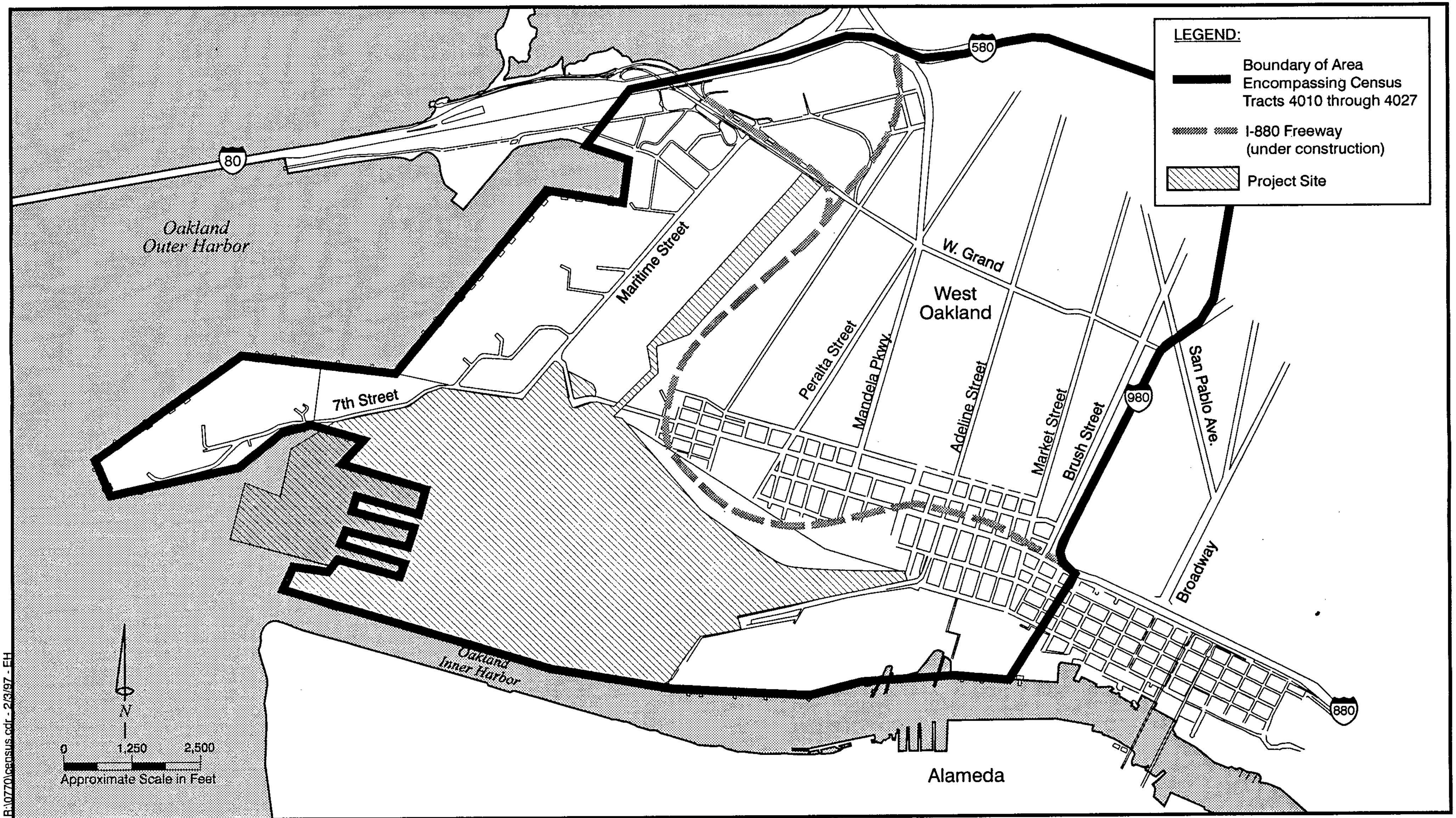
An estimated 80 percent of all persons directly employed through the Port of Oakland's maritime activities resided in Alameda County, Contra Costa County, and the City and County of San Francisco in 1990 (O'Connell 1991 and Whittington, A., June 19, 1996, personal communication). These three counties contain almost half the total population of the nine-county San Francisco Bay Area. The population in this three-county area increased approximately 15 percent between 1980 and 1990, and it is projected to grow an additional 24 percent between 1990 and 2010 (ABAG 1993).

Oakland's population increased by about 10 percent between 1980 and 1990. It is Alameda County's largest city and the third largest city in the nine-county region. ABAG projects that Oakland's population will increase by another nine percent over the 20-year period between 1990 and 2010 (ABAG 1993). Most of the population increase projected to occur in Alameda County between 1990 and 2010 is expected to occur in the eastern portion of the county, rather than west of the Oakland hills, an area that is already highly developed.

The community of West Oakland encompasses sixteen census tracts that lie south of Interstate 80, west of Interstate 980, north of the Oakland Inner Harbor, and east of San Francisco Bay (Figure 3-6). West Oakland's population increased by about 15 percent, from 21,130 in 1980 to 24,188 in 1990, and the community's racial composition changed markedly between 1980 and 1990. The percentage of African Americans in West Oakland declined substantially, while all other racial groups in the community increased both in number and percentage. While West Oakland's racial composition is changing, it is still a predominantly African American community.

3.2.2 Income

There are major income disparities between West Oakland and other parts of the ROI. In 1990, the mean household income in the three counties was around $50,000, with per capita income close to $20,000. In the City of Oakland, the mean household income in 1990 was $37,100—about 30 percent lower than in the three-county area—and per capita income was $14,676. In West Oakland, the income disparity is even greater, with mean household income at $21,940 and per capita income at $7,763—only about half the citywide and one-third the regional per capita income. In 1990, 36 percent of West Oakland residents were living below poverty level, compared with 19 percent citywide and 10 percent in the three-county region.



Source: Port of Oakland 1996

The West Oakland community was selected as the region of influence for environmental justice issues because this area would have the greatest exposure to project impacts.

West Oakland Region of Influence for Environmental Justice

Fleet & Industrial Supply Center Oakland and Port of Oakland

Port of Oakland

Figure 3-6

3.2.3 Employment

While the three-county area enjoyed strong economic and employment growth from the 1940s through the 1970s, several recent recessions and economic slowdowns have slowed the rate of job growth. This slowing of job growth has been exacerbated by military base closures throughout the region. ABAG projects that job growth from 1990 to 2010 will continue to be relatively slow and that the decentralization of jobs away from the urban core to outlying suburbs will continue. ABAG also projects that the percentage of jobs in manufacturing and government will continue to decline, while the percentage of jobs in services and retail trade will continue to grow (ABAG 1993).

Table 3-2 includes civilian unemployment rate data from the 1990 census. The unemployment rates for the three counties of concern range from 5.0 percent (Contra Costa County) to 6.3 percent (City and County of San Francisco), while Oakland's unemployment rate was 10 percent. The unemployment rate in West Oakland was almost 20 percent, or roughly three times the region's unemployment rate.

According to the Port of Oakland Maritime Economic Impact Study, maritime activity related to the Port employed 6,693 persons in 1990. Table 3-3 shows the number of employees by type. The largest percentage of jobs was in trucking (23.1 percent), government (14.8 percent), and warehousing (13.8 percent). Almost three-fourths of these workers lived in the three-county region, and more than 18 percent lived in Oakland in 1990 (Port of Oakland 1990).

This maritime activity at the Port generated more than $220 million in personal income from direct jobs in 1990. The Port estimates that the direct jobs related to its maritime facilities supported an additional 2,900 induced jobs throughout the Bay Area as a result of maritime industry worker spending, for a total of almost 10,000 jobs; many of these jobs are located in Oakland. In addition, Port activities indirectly support a wide variety of other types of businesses, such as importers and exporters, throughout the Bay Area.

An estimated 5,591 workers were directly employed at FISCO facilities in 1990. These included 3,265 workers at shore facilities, plus 2,326 personnel associated with ships homeported at FISCO. Almost all of these jobs (5,327, or 95 percent) were located on reversionary Navy land (see Figure 1-3). The ratio between direct and induced employment is lower for government jobs (1.12, according to ABAG 1995) than that for the Port's maritime jobs (1.43). The direct FISCO jobs, therefore, would have supported an additional 671 jobs, for a total of over 6,000 jobs. However, since 1990, direct Navy employment at FISCO has declined by fifty percent, to under 2,300 jobs in 1995. In contrast, the Port's maritime-related employment has increased to 8,000 since 1990 (Whitington, A., September 10 and December 13, 1996, personal communication).

Table 3-3
Employment Related to Maritime Activity at the Port of Oakland, 1990

Employment Sectors	Number of Employees	Percent
Railroad	570	8.5%
Trucking	1,549	23.1%
Terminal employees	411	6.1%
International Longshoremens and Warehousemens Workers Union	562	8.4%
Towing	31	0.5%
Pilots	12	0.2%
Agents	472	7.1%
Surveyors/chandlers	30	0.4%
Forwarders	558	8.3%
Warehousing	924	13.8%
Container repair/storage	29	0.4%
Government/military	993	14.8%
Marine construction/shipyards	148	2.2%
Barge	27	0.4%
Shippers/consignees	100	1.5%
Port of Oakland staff	202	3.0%
Banking/insurance	75	1.1%
Total direct jobs	6,693	100.0%

Source: Whittington, A., June 13, 1996, personal communication

3.2.4 Housing

Alameda and Contra Costa Counties contain nearly half the housing stock of the nine county Bay Area. However, there are distinct differences in owner-occupancy rates and housing costs among the three counties. Owner occupancy rates in Alameda County, Contra Costa County, and the City and County of San Francisco in 1990 were 53 percent, 64 percent, and 35 percent, respectively. These rates partially reflect the differences in the median values of owner-occupied homes in each location, which were $225,300, $219,400 and $298,900, respectively in 1990. In the City of Oakland in 1990, the rate of owner-occupancy was 39 percent, even though the median value of an owner-occupied home ($117,400) was considerably lower than elsewhere in the region.

The community of West Oakland contained almost 10,000 housing units in 1990. The owner-occupancy rate in West Oakland in 1990 was 18 percent—only half the citywide rate and about one third the regional rate. This is due in part to the large number of tenant-occupied public housing units (more than 10 percent of all units) in the community.

West Oakland's housing stock is some of the oldest in Oakland. Many structures lack adequate heating or plumbing or are substandard in other ways. Approximately 14 percent of all units in the community are vacant and boarded up. In spite of these housing conditions, the median value of an owner-occupied unit almost tripled between 1980 and 1990, when it reached $101,871. West Oakland's proximity to downtown Oakland jobs, its central location in the metropolitan area, increased regional demand for housing, and access to regional transportation could be reasons for this increase.

There are three units of housing on FISCO that house Navy personnel—Quarters A (Building 324), Quarters B (Building 325), and Quarters C (Building 323). These three units are located on the block bounded by E and G Streets between 3rd Street and 4th Street in the northern portion of FISCO.

3.2.5 Environmental Justice Considerations

Information sources for this section include census data (US Department of Commerce, Bureau of Census, 1980 and 1990), field observations, interviews with local residents, a public participation plan prepared by Caltrans for the Cypress Replacement Project, the Coalition for West Oakland Revitalization (CWOR) community plan, and meetings and correspondence between the Port of Oakland and neighborhood organizations.

Environmental justice refers to the fair treatment of people of all races, cultures, and income with respect to the development, implementation, and enforcement of environmental laws, regulations, and policies (US EPA 1996b). Executive Order No. 12898, signed by President Clinton in 1994, requires federal government agencies to consider the potential for their actions or policies to cause disproportionately high and adverse human health or environmental effects on minority and low-income populations.

The socioeconomic data presented in this section and in Appendix F illustrates the contrast between West Oakland and the rest of the region in such quality of life indicators as employment, income, and housing. Census data show that unemployment in this community is double the citywide rate and more than triple the countywide and regional rates. Similarly, per capita income in West Oakland is 53 percent of the citywide per capita income and 44 percent of county per capita income (US Department of Commerce 1990).

West Oakland families tend to be larger and poorer than families living elsewhere in the region. Thirty-six percent of West Oakland's residents are living below the poverty level, compared with 19 percent citywide and 11 percent countywide (US Department of Commerce 1990). Ninety percent of all public school students in West Oakland are on Aid to Families with Dependent Children (CWOR 1994). The labor force participation rate is well below that found in the surrounding region.

In 1980, West Oakland's population was 87 percent African American (US Department of Commerce 1980). By 1990, in-migration of other minority ethnic groups, particularly Asians and Hispanics, had reduced this percentage to 76 percent (US Department of Commerce 1990). Nonetheless, the area's residents remain predominately low income (and some middle income) African American families (CWOR 1994).

West Oakland had been a thriving African American cultural center during World War II, when business at the port and railroad facilities was expanding rapidly. The area began to decline after the war, when many unskilled and semi-skilled workers were laid off. A variety of urban renewal projects, including construction of the Grove-Shafter Freeway, BART, housing projects, and the new Main Post Office, resulted in the displacement of many families from West Oakland and the loss of commercial services along 7th Street. In response to these events, West Oakland residents organized to oppose projects that could affect their neighborhood adversely (CWOR 1994).

In 1989, the Loma Prieta earthquake destroyed a section of the Cypress Freeway where it traverses West Oakland. Residents of the area united to oppose reconstruction of the freeway in their community. Caltrans agreed to relocate the freeway away from residential areas and to promote job training for local residents. Subsequent community planning efforts resulted in the preparation of a report entitled "West Oakland Visions and Strategies" in May 1994 (CWOR 1994), which describes community problems and articulates goals and strategies for addressing them. These recent events, as well as the West Oakland Environmental Justice Pilot Project recently launched by the Environmental Protection Agency, have raised the level of community awareness about environmental justice issues (CWOR 1994).

The community plan prepared by CWOR in 1994 recognized the proximity of FISCO and the Port of Oakland maritime facilities. The report notes that these facilities were located in the immediate vicinity of the residential sections of West Oakland and provide the primary means of access to San Francisco Bay. However, this residential area is buffered from FISCO and Port facilities by the Southern Pacific Railyard and the new I-880 freeway under construction.

The report recommended that the base conversion planning process involve the local community. Through the public participation process, neighborhood residents hope to ensure that their concerns are heard and that the conversion activities will be compatible with West Oakland's revitalization goals (CWOR 1994). A neighborhood profile prepared by the Oakland Citizens Committee for Urban Renewal articulates a goal of improving the relationship between the Port of Oakland and the West Oakland community. The Port has had a series of meetings with community representatives to learn more about community concerns and to involve the community in its evaluation and implementation of the Vision 2000 Program.

3.3 PUBLIC SERVICES

This section discusses police, fire protection, and emergency medical services at the FISCO/Vision 2000 project site. The ROI for this section is the City of Oakland, including the project site. The city limits of Oakland were chosen as the ROI because city public service agencies currently provide service to the project site.

Historically, the Navy provided all public services at FISCO. However, the Navy currently provides public services only to the areas of FISCO it still occupies, while the City of Oakland provides public services to Port-leased FISCO areas and the surrounding Vision 2000 project site.

3.3.1 Police Services

3.3.1.1 FISCO Public Safety Department, Police Division

The FISCO Public Safety Department, Police Division, provides police services at FISCO, and uses Building 410 as a main headquarters and Building 502 as an administrative office. During the Navy's most recent peak levels of activity on FISCO from 1990 to 1991, the Police Division included approximately 88 staff members— one police chief, three police captains, three police sergeants, four dispatchers, two investigators, seven administrative support, and approximately 68 police officers. The Police Division had 13 vehicles, including one prisoner transport vehicle, two pickup trucks, and 10 sedans (Guldner, E., June 10, 1996, personal communication).

Police services at FISCO include perimeter and building security, and traffic and parking law enforcement. Perimeter security at FISCO consists of staffing entrance gates and conducting regular patrols. Gate one at the intersection of Middle Harbor Road and Maritime Street is staffed with two officers, 24 hours a day, seven days a week. Gate two on the eastern entrance to FISCO on Middle Harbor Road is staffed with one officer, 50 hours a week. Two vehicles patrol the base 24 hours a day, seven days a week, with a third vehicle added during working hours, 7 AM to 3 PM, Monday to Friday. These vehicles monitor the perimeter of the base, check buildings hourly, respond to emergencies, and enforce traffic law (Guldner, E., June 10, 1996, personal communication).

In May of 1996, the City of Oakland (through the state of California) accepted proprietorial legislative jurisdiction over all of FISCO from the Navy, enabling the Oakland Police Department to enforce state and local laws on all of FISCO (Bonino, M., September 12, 1996, personal communication). However, in September of 1996, the City of Oakland granted peace officer status to the Navy's FISCO security personnel, allowing them to continue to patrol and enforce all laws on Navy-occupied areas of FISCO, but requiring prosecutions of state and local crimes through the City of Oakland (M. Bonino, November 14 and December 13, 1996, personal communication). Patrols and law enforcement by Navy police officers on Navy-occupied FISCO property will continue until lease

or reversion of Navy-occupied FISCO property to the Port or until other arrangements are made.

3.3.1.2 Oakland Police Department

The Oakland Police Department currently provides police services to areas of FISCO leased by the Port and to the surrounding Vision 2000 Project site. The Port and City have signed a Memorandum of Understanding (MOU) according to which the Port will make annual payments to the City for its increased police needs as a consequence of the areas of FISCO it is presently leasing (US Navy 1995c).

The police department has an authorized staffing level of 711 sworn officers, 390 support staff employees, and 76 reserve officers (Belman, L., June 6, 1996, personal communication).

The police department receives approximately 74,000 emergency calls per month and prioritizes the calls according to a four-level classification system. The classification system assigns a higher priority to emergency calls that involve immediate threats to life, health, and property and a lower priority to calls that do not involve crimes in progress (Bruning, P., June 27, 1996, personal communication).

Officers are dispatched to the highest priority. The department responds as fast as possible to all calls it receives but does not track the actual response time from receipt of an emergency call to the arrival of a police officer. The department does compile historical data to track the average dispatch time, or the elapsed time between receipt of the emergency call and dispatch of the officer, for emergency calls. Approximately 80 percent of the highest priority calls are dispatched within one minute of receiving the call (Bruning, P., June 27, 1996, personal communication). Table 3-4 shows the classification system and the average dispatch time for calls received under each priority.

Table 3-4
Emergency Call Priority System and Approximate Average Dispatch Times for Oakland Police Department

Priority	Types of Calls	Dispatch Time
A	Serious crimes in progress, such as robberies and burglaries	80% of calls dispatched within one minute
B	Urgent requests for service, such as family fights and loud arguments	70% of calls dispatched within ten minutes
C	Reports of completed crimes, such as burglary and vandalism	70% of calls dispatched within one hour
D	Requests for service for items, such as neighborhood complaints	Data not available

Source: Bruning, P., June 27, 1996, personal communication.

The Oakland Police Department operates from the downtown police station located at 455 7th Street, and on-duty officers patrol geographically defined areas. The police department divides Oakland into five districts composed of seven beats each (Figure 3-7). At least seven officers patrol each district (one per beat) and are sometimes assisted by several support officers that have no fixed geographic patrol areas. All districts are patrolled 24 hours a day, with officers working three overlapping 8.5 hour shifts (Payne, R., June 5, 1996, personal communication).

The project site is in District 1, Beat 2, and is bordered by Beats 1, 4, and 5. Crime statistics for Beats 1, 2, 4, and 5 for 1993 and 1994, along with city-wide crime statistics, are shown in Table 3-5. The most recent year for which complete statistics are available is 1994. Between 1993 and 1994, total criminal offenses and total arrests declined slightly more for Beats 1, 2, 4, and 5, compared to city-wide statistics.

Table 3-5
Oakland Police Beat Statistics for District 1

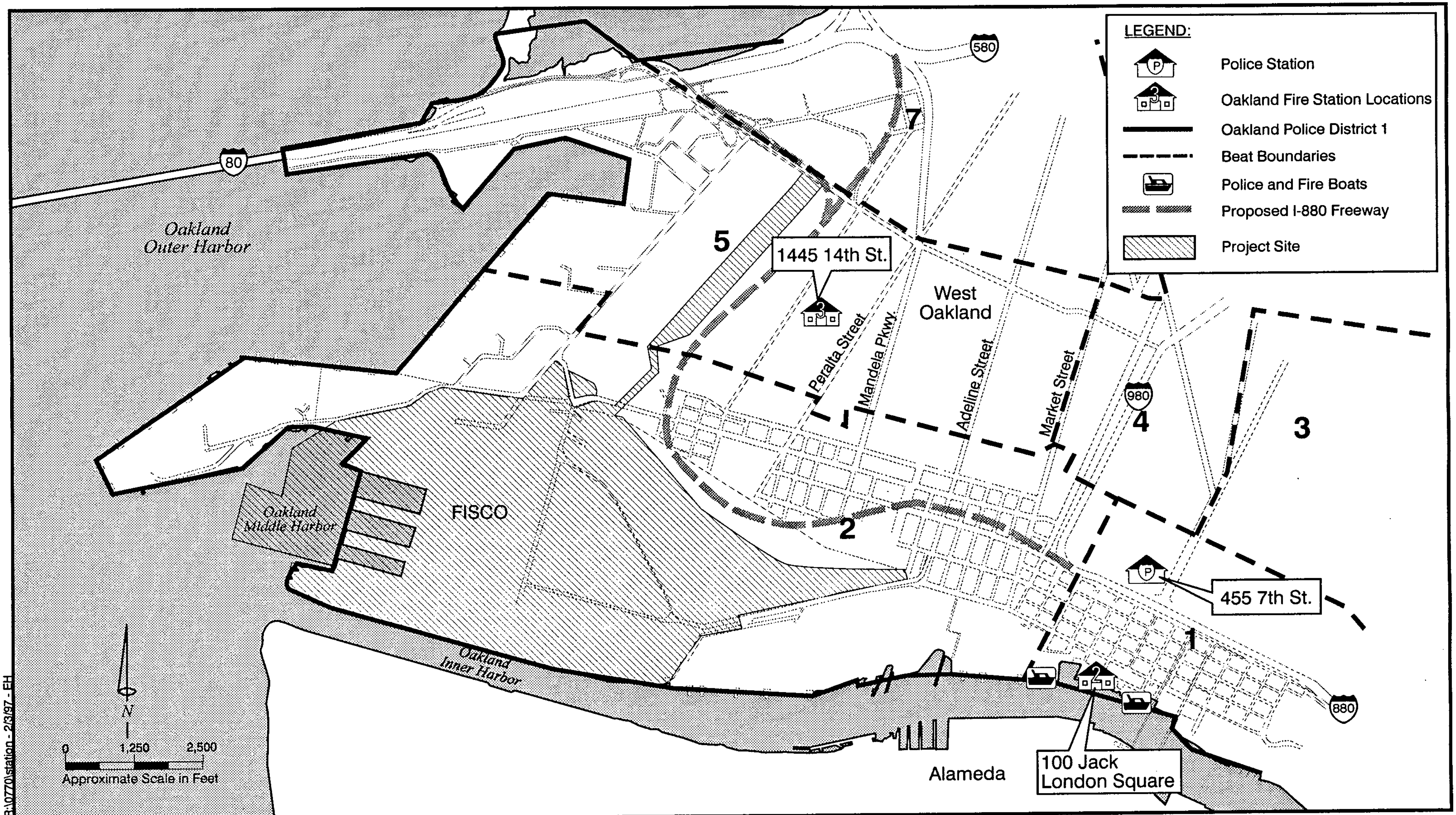
	1993		1994		Percent Change 1993-1994	
	Offenses	Arrests	Offenses	Arrests	Offenses	Arrests
Beat 1	4,821	2,601	3,958	2,380	-18%	-8%
Beat 2	2,390	960	2,239	913	-6%	-5%
Beat 4	2,131	1,427	1,888	1,195	-11%	-16%
Beat 5	2,461	1,416	2,390	1,301	-3%	-8%
Total of Beats 1, 2, 4, and 5	11,803	6,404	10,475	5,789	-11%	-10%
City-wide totals	80,031	35,033	72,502	33,004	-9%	-6%

Source: City of Oakland 1993, 1994a

The Oakland Police Department also maintains a police boat docked at Fire Station 2 at 100 Jack London Square, east of the project site. Two reserve officers maintain this boat and patrol the Oakland harbors weekly on Sundays. The boat is used primarily to enforce boating laws and to maintain police presence at the Oakland Inner Harbor from the Park Street Bridge to the Oakland Outer Harbor (Beale, M., June 19, 1996, personal communication).

3.3.1.3 Railroad Police Departments

Both the Southern Pacific and Union Pacific Railroads have their own police departments, which have the same statutory authority as the state police and highway patrol. They work in conjunction with the Oakland police department, apprehend and arrest criminals, and conduct investigations related to railroad matters.



Source: Port of Oakland, 1996

Fire and police protection will continue to be provided by the Navy until transfer of the property to the Port of Oakland. At that time, the entire project site will be served by City of Oakland police and fire departments.

Fire and Police Station Locations

Fleet & Industrial Supply Center Oakland
and Port of Oakland

Figure 3-7

Port of Oakland

3.3.2 Fire Services

3.3.2.1 FISCO Public Safety Department, Fire Division

The FISCO Public Safety Department provides fire protection and rescue services to FISCO from its headquarters at Building 410 and its administrative support at Building 502. During peak levels of Navy activity from 1990 to 1991, the Fire Division included 32 officers and firefighters—one chief, two assistant chiefs, six fire captains/platoon leaders, and 23 firefighters. Two fire trucks provide service to the facility.

Unless other arrangements between the Navy and Port are made, the Navy will continue to provide fire protection services to Navy-occupied FISCO property until closure of the facility in September of 1998 or until lease or reversion of the property to the Port of Oakland (Bonino, M., November 4, 1996, personal communication).

3.3.2.2 Oakland Fire Department

The Oakland Fire Department currently provides fire protection and rescue services to areas of FISCO leased by the Port and to the surrounding Vision 2000 project site. The fire department's goal is to respond to fires within three to five minutes. The Oakland Fire Department is budgeted to have 475 full-time firefighters, with 123 on duty at any one time, and 45 support staff (Speakman, J., June 5, 1996, personal communication).

Fire Stations 2 and 3 provide fire protection and emergency rescue services to the project site. Fire Station 3 at 1445 14th Street and Center Street, approximately one mile northeast of the project site, is staffed by two officers, six firefighters, and eight support personnel 24 hours a day and uses one engine and one truck for fire suppression. Station 2 at 100 Jack London Square, approximately 1.5 miles east of the project site, is staffed by one officer and three firefighters 24 hours a day, and one engine provides fire suppression support. Station 2 also maintains a fire boat to provide additional fire protection to areas along the Oakland Inner Harbor not accessible by land. Both fire stations estimate a response time to the project site of from 3 to 5 minutes after receiving an emergency call (Speakman, J., June 5, 1996, personal communication).

3.3.3 Emergency Medical Services

The Oakland Fire Department provides emergency response to medical calls to all parts of the project site, including FISCO.

For emergency ambulance transportation of patients at the project site, the American Medical Response Ambulance Company is contracted by the Alameda County Emergency Medical Services District to respond within ten minutes to all 911 medical calls and to transport patients to the closest appropriate hospital. Additionally, the Oakland Fire Department is contracted to the Alameda County Emergency Medical Services District as a "first respondent" — 60 to 80 percent of

the time, the fire department reaches emergency locations first, due to the local distribution of fire stations. However, because the fire department staffs only emergency medical technicians (EMTs) on its vehicles and not paramedics, it performs only support functions (Akers, D., June 7, 1996, personal communication).

The Occupational Medical Corporation of Oakland maintains four Spectrum Medical Care clinics in the East Bay, including the Port of Oakland branch, located on the western side of the Southern Pacific West Oakland Railyard at 2097 7th Street. The facility provides medical care for non-life threatening injuries to the West Oakland community, including the project site. Four doctors regularly staff each clinic but may rotate between clinics on an as-needed basis. Eight support personnel (nurses or technicians) regularly staff the facility, with support personnel rotating in from the three other Spectrum Medical Care clinics on an as-needed basis. The Port of Oakland branch treats approximately 40 people a day, 5 days a week, or about 10,400 people every year (Sanders, M., July 10, 1996, personal communication).

3.4 CULTURAL RESOURCES

This chapter describes cultural resources on the FISCO/Vision 2000 project site. Separate sections of this chapter discuss prehistoric archeological resources, Native American resources, and historic resources (both archeological and architectural). A discussion of regulatory considerations related to cultural resources is presented in Appendix E. The ROI for cultural resources is the entire project site because only cultural resources within the boundaries of the project site potentially would be affected by project activities.

The term "cultural resources" includes any object, site, area, building, structure, or place that has archeological or historical significance or that exhibits traditional cultural value (e.g., properties sacred to Native Americans or other ethnic groups). The definition includes assets significant in the architectural, scientific, engineering, economic, agricultural, educational, social, political, military, or cultural annals of California.

3.4.1 Cultural Resources Studies

3.4.1.1 Archeology

A prehistoric and historic site record and literature search for the project site was completed by personnel of the Northwest Information Center of the Historical Resources File System, Sonoma State University, Rohnert Park (NWIC File No. 96-34). The results of this search revealed that seven previous surveys had been conducted within or adjacent to the project site. These surveys totaled approximately 130 acres (16 percent) of the project site, of which approximately 15 percent was conducted within FISCO property, 84 percent was conducted within the Southern Pacific West Oakland Railyard, and the remaining 1 percent was conducted within the Oakland Army Base. As determined by these surveys, no prehistoric or historic archeological resources were recorded within or adjacent to the project site (Hagel 1996).

3.4.1.2 Historic Buildings and Structures

FISCO. The California Department of Transportation (Caltrans) conducted a comprehensive inventory of FISCO buildings and structures in 1990, in connection with its project to rebuild the I-880 Cypress Freeway that was damaged during the 1989 Loma Prieta earthquake (Caltrans 1990).

The Caltrans inventory is regarded as a *comprehensive survey*, in that it dealt with all buildings and structures within the facility. It concluded that there exists within FISCO a historic district that was eligible for listing in the National Register of Historic Places (NRHP). According to Navy records, no other building or structure inventories have been conducted at FISCO.

Oakland Army Base. Caltrans conducted a comprehensive inventory of the Oakland Army Base in the late 1980s in connection with its project to rebuild the I-880 Cypress Freeway (Caltrans 1990). The study concluded that a historic

district existing within the Oakland Army Base was eligible for listing in the NRHP. The district includes two clusters of buildings and structures, identified as the northeast and northwest quadrants. The Navy has no disposal authority over the Oakland Army Base property and any decision allowing Port use of this land would require separate Army approval.

Southern Pacific West Oakland Railyard. The Caltrans building and structure inventory also included the Southern Pacific West Oakland Railyard (Caltrans 1990). The inventory concluded that a NRHP-eligible historic district exists within the railyard, called the Southern Pacific West Oakland Shops Historic District, with two discontiguous segments. The inventory also concluded that three Southern Pacific-owned buildings and structures, the 16th Street Station (the former Amtrak Station) and associated tower and the 26th Street Bridge, were eligible for listing in the NRHP. In addition, the 16th Street Station is an Oakland landmark (Oakland Landmarks Preservation Advisory Board 1995). It appears that no other building or structure surveys have been conducted within the Southern Pacific Railyard.

Union Pacific Intermodal Railyard. Several unrelated building and structure inventories have been conducted in the vicinity of the Union Pacific Intermodal Yard in Oakland. In 1985, the "deteriorated marine facilities" owned by the Union Pacific Railroad Company in Oakland and San Francisco were inventoried and evaluated. The Oakland facility was located at the northwestern extreme of the Union Pacific yard, at the tip of what had been the Western Pacific mole, a bermed track extending into the bay (Wall and Delgado 1985). The "deteriorated" feature in Oakland was a concrete foundation for the ferry slips, used in connection with the mole. The deteriorated foundations were found not eligible for listing in the National Register; these foundations have since been destroyed (Wall and Delgado 1985). The Wall and Delgado survey covered only a small part of the Union Pacific Intermodal Yard.

The Corps of Engineers, San Francisco District (Corps), in 1990 expressed an opinion that a "training wall"—a stone masonry jetty built by the Corps during the 1870s along the Union Pacific railyard— is believed to be eligible for inclusion in the National Register of Historic Places (Lerner 1990). A large portion of the training wall is covered by fill used to create the Union Pacific site and is only partially exposed at the western end of the Union Pacific railyard. The Lerner report was never sent to the California State Historic Preservation Officer (SHPO) for concurrence with the determination of eligibility of the resource. However, for the purposes of this EIS/EIR, the training wall is treated as an eligible property.

No other buildings or structures within the Union Pacific Railyard are eligible for listing in the National Register of Historic Places or in the California Register of Historical Resources (CRHR).

Don Gary Investments, Ltd., and Space Assignment Leases. The nine-acre Port property leased to Don Gary Investments, Ltd., and the five-acre Port property leased to various tenants were inventoried in 1996 by JRP Historical Consulting in preparation for this EIS/EIR. The study concluded that no buildings or structures within these two Port of Oakland lease areas qualify for listing in the NRHP or in the CRHR.

3.4.2 Prehistoric Archeological Resources

Prehistoric resources are physical properties resulting from human activities that pre-date written records and that generally are identified as either isolated finds or sites. Prehistoric sites can include villages, temporary camps, rock shelters, milling stations, lithic scatters, quarries, burials and cremations, rock features and hearths, rock art, and bone scatters.

The Navy has conducted extensive research to identify all collections of prehistoric resources from Navy lands, and no collections were identified from FISCO property. No surface evidence of prehistoric sites has been observed within the boundaries of the project site. The probability for undisturbed surface deposits in unsurveyed areas or for intact subsurface prehistoric deposits is considered to be very low due to the extensive amount of dredging and filling of the area in 1940 and the continual development that has occurred in the area over the last 50 years.

3.4.3 Native American Resources

The predominant Native American group known to have occupied the San Francisco Bay Area is the Costanoan. Linguistic evidence suggests that the ancestors of the Costanoans moved into the San Francisco and Monterey Bay Area about AD 500 (Levy 1978). The establishment of the Spanish missions in the Bay Area in the 1770s led to the decline of the Costanoan population (US Navy 1990c).

Native American resources are sites, areas, and materials important to Native Americans for religious, spiritual, or traditional uses, such as gathering plants or materials for food, ceremonies, medicinal, or economic purposes. These resources may include villages, burials and human remains, cremations, rock art, rock features, and spring locations. With respect to Native American resources, activities that may affect sacred areas, their accessibility, or the availability of materials used in traditional practices are of primary concern.

No Native American resources have been identified on FISCO property, and no areas have been used for gathering, collecting, or conducting ceremonies by Native American groups or individuals during the Navy ownership of the land. There also has been no reference in the literature to any spiritual significance of this area, nor does the Navy have any record of receiving a request to use any of the FISCO property for such purposes. There are also no known Native American resources on any of the non-Navy properties included in the project site.

Because most of the project site is located on what was originally tidal marshlands that were dredged and filled in 1940, the probability for buried Native American resources or subsurface remains within the project site boundaries is very low.

3.4.4 Historic Resources

Historic resources consist of physical properties, structures, or built items that post-date written records. Historic resources can include architectural structures and archeological remains. Historic archeological site types include refuse concentrations, townsites, homesteads, agricultural features, ranching features, and structures, features, or artifacts associated with the early military use of the land.

3.4.4.1 Historic Archeological Resources

No historic archeological sites have been identified on FISCO property or in the project site. There is a very low possibility of surface deposits in unsurveyed areas and subsurface historic resources, such as refuse deposits, privies, or cisterns associated with early land use by the Spanish, homesteaders, city founders, or Navy operations during World War II. However, this probability is considered to be unlikely due to the amount of dredging and filling of the land that occurred in 1940 and the extensive development since that time.

3.4.4.2 Historic Architectural Resources

FISCO

Historical Setting. The American occupation of the Philippines and other Pacific Ocean territories following the Spanish-American War brought to the forefront the need for a central supply depot on the West Coast, and Oakland began to emerge as the favored site during the mid-1930s. To ensure its selection, the City of Oakland (acting pursuant to a charter amendment and by joint action of the City Council and the Board of Port Commissioners) in 1940 granted approximately 392 acres of the Middle Harbor area to the Navy. The Navy developed conceptual plans for the facility in 1937, and congressional authorization occurred in 1939.

There were no buildings at the site in 1939 and only a small portion of the existing land was usable. The land for much of the Naval Supply Center was created by filling in the gap created by the Southern Pacific mole on the north and the Western Pacific mole on the south. Construction of FISCO involved first filling the marshlands and then constructing the buildings. Both proceeded in earnest in late 1940 and 1941. When the United States entered World War II as a combatant, the only completed buildings were located primarily on the northern edge of the property, along the Southern Pacific mole, on land already stabilized before 1940. The remainder of the World War II-era construction continued through 1944. The Naval Supply Center, now called FISCO, remained open and active during the Cold War era of American military activity

and served the fleet during the Korean and Vietnam Conflicts and Persian Gulf War.

Historical Status of Buildings and Structures. The Naval Supply Center was inventoried by Caltrans in 1990, in connection with the Caltrans I-880 Freeway replacement project (Caltrans 1990). The inventory concluded that individually, none of the buildings would qualify for listing in the National Register; however, collectively, the World War II-era buildings and structures would qualify for listing as a historic district. The district was called the "Naval Supply Center, Oakland Historic District." It included 84 buildings and structures that contribute to the significance of the historic district and 42 noncontributing buildings and structures within the mapped boundaries. The list of contributing buildings and structures that existed at FISCO in 1990 are identified in Table 3-6. The boundaries of this historic district are shown on Figure 3-8. On October 5, 1990, the California SHPO concurred with the findings of the Caltrans survey regarding the NRHP eligibility of the Naval Supply Center, Oakland Historic District.

Some buildings at FISCO have been demolished within the designated historic district since 1990. In 1994, the Navy and the Port executed a Memorandum of Agreement (MOA) with the SHPO and the Advisory Council on Historic Preservation (ACHP), pertaining to Navy leases to the Port of up to approximately 220 acres of FISCO. That MOA allowed for demolition of buildings within approximately 190 acres of the larger 220-acre lease area; the MOA is provided in Appendix G. The Port of Oakland has undertaken these demolitions on an "as-needed" basis, demolishing buildings only when the underlying land is needed for other purposes. To this date, approximately a dozen demolitions have occurred. These demolitions are fully authorized and may occur at any time without further environmental review.

The Port has identified 42 buildings (29 of which are contributors) that it intends to demolish by September 1998, with all but three of those to be demolished by July 1997. Thirteen additional buildings already have been demolished. Therefore, the number of buildings listed in Table 3-6, may become dated at any time. The 42 buildings slated for demolition include approximately one third of the total number of contributing buildings and structures within the historic district.

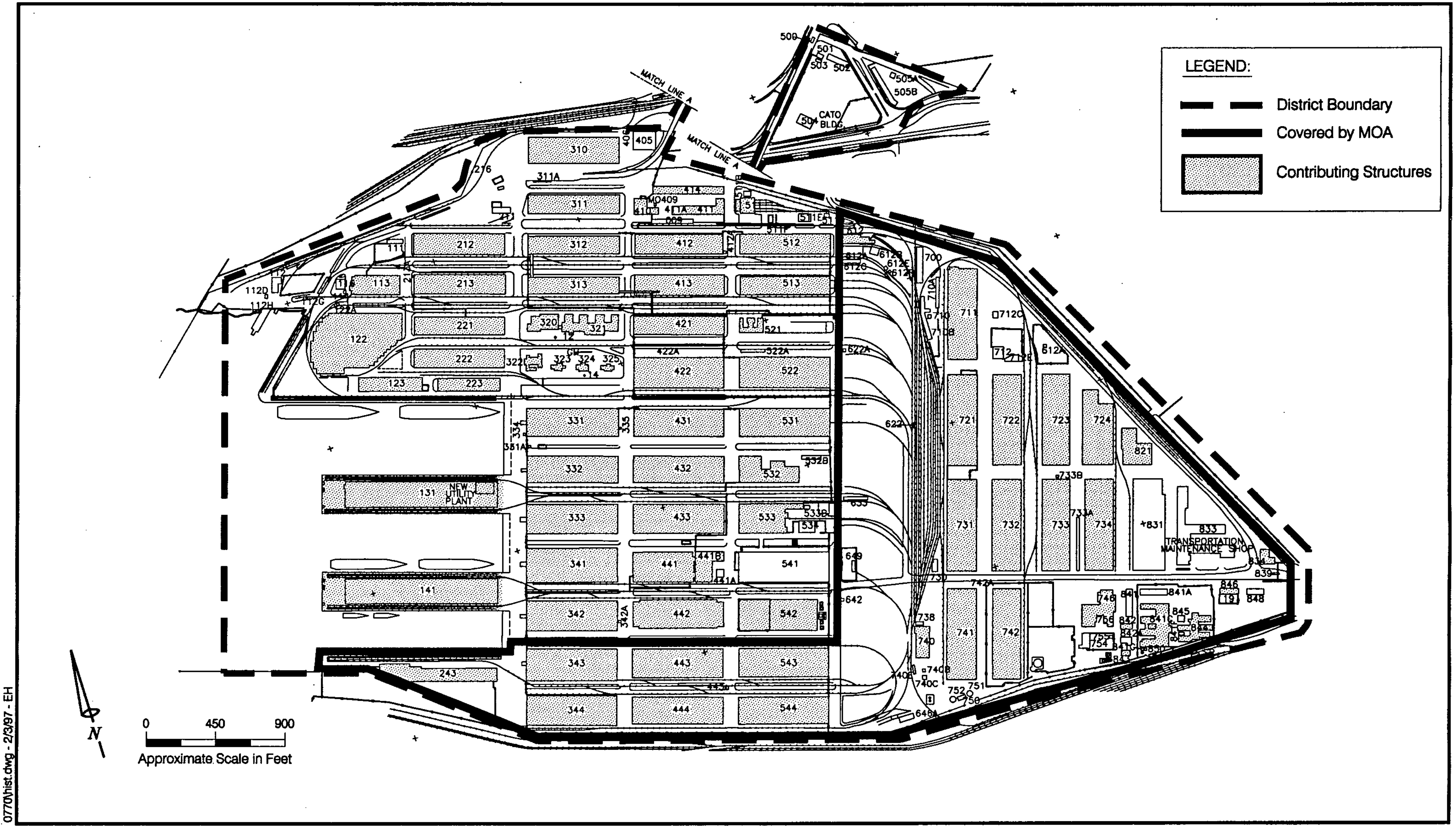
Oakland Army Base

Historical Setting. The land that is now the Oakland Army Base became a workable industrial/supply facility as a result of Corps of Engineers' improvements to the Oakland Harbor area during the years just before World War I. The larger Oakland Harbor improvement project created the foundation for several important developments in the East Bay area: it established the basic

Table 3-6
Contributing Buildings Within the FISCO Historic District

Building Number	Building Use	Building Number	Building Use
10	Maritime Street overpass	441	Coffee roasting plant
113	Cold storage warehouse	441A	Substation
122	Storage shed	441B	Repair shop and cafeteria
131	Shed on Pier 4	442	Dry provisions storehouse
	Pier 4	*443	Storehouse
141	Shed on Pier 5	**444	Storehouse
	Pier 5	511	Locomotive and crane shed
211	Heating plant	512	Heavy materials storehouse
212	Reserve material warehouse	*513	Heavy materials storehouse
213	Dry provisions storehouse	521	Marine barracks
221	Dry provisions storehouse	522	Aeronautical storehouse
222	Dry provisions storehouse	*531	Advance base storehouse
223	Transit shed	*532	Lumber storage
*243	Transit shed		Box factory
310	Medical building	533	Lumber storage shed
311	General storehouse	534	Paint shop
*312	General storehouse	542	Storehouse
*313	General storehouse	*543	Storehouse
320	Cafeteria	**544	Storehouse
321	Administration building	*612	Surplus materials shed
322	Dispensary	*711	Storehouse
323	Commanding officer staff quarters	*721	Storehouse
324	Commanding officer staff quarters	*722	Storehouse
325	Commanding officer staff quarters	*723	Storehouse
*331	Dry provisions storehouse	*724	Storehouse
*332	Dry provisions storehouse	*731	Storehouse
333	Dry provisions storehouse	*732	Storehouse
341	Dry provisions storehouse	*733	Storehouse
342	Dry provisions storehouse	*734	Storehouse
*343	Dry provisions storehouse	**740	Unknown
**344	Dry provisions storehouse	*741	Storehouse
**409	Office building	*742	Storehouse
410	Firehouse and public works shop	743	Recreation building
**411	Garage	*746	Gym/theater/library/bowling alley
412	Reserve materials storehouse	*821	Storage shed
*413	Acid and chemicals storehouse	*834	Unknown
**414	Automotive equipment shed	**841B	Barracks
*421	Aeronautical materials storehouse	**841C	Barracks
422	Aeronautical materials storehouse	**841E	Barracks
431	Paint and oil storage	**842	Welfare building
*432	Paint and oil storage	**843	Brig
433	Reserve materials storehouse	**844	Subsistence building and laundry
		846	Officers quarters

Source: Caltrans 1990
*denotes building slated for demolition by the Port by July 1997
**denotes building already demolished as of October 1996



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The contributing structures have been determined collectively to make up a historic district. An existing MOA allows for building demolition in 190 acres of the initial lease area of 220 acres, although demolition only occurs when land is needed for other purposes.

Source: Caltrans 1990

NSCO Historic District

Fleet & Industrial Supply Center Oakland
and Port of Oakland

Figure 3-8

Port of Oakland

harbor facility for the Port of Oakland; it created the landfill on which the NAS Alameda would be constructed; and it laid the basis for construction of the Naval Supply Center and the Oakland Army Base.

The decision to establish an Army base at Oakland was made hurriedly in the years 1939-40. The Oakland Army Base had been partially filled by the City of Oakland and private parties and several dozen public and private buildings existed on the site in 1940. The Army base was defined by the Southern Pacific mole on the south and on the north by the Key System pier, which would later become the eastern terminus for the San Francisco-Oakland Bay Bridge.

The City of Oakland, which had actively courted the Navy, protested Army use of its site. The Army condemned the land it needed, chiefly from the City of Oakland and the Southern Pacific Railroad. The Army initially reused some of the existing buildings in the area; two 1918-19 buildings still exist at the site. Quickly, the Army (the US Quartermaster Corps until late 1941 and the Corps of Engineers thereafter) began to construct permanent buildings at the site. Among the critical work performed by the Corps of Engineer was deepening the Outer Harbor to a 35 foot depth, the depth required by the largest ships of that period to use the facility. All of the land that the Army condemned from the City was (and still is) located within the Port Area. Under agreement and judgments, the City, acting through the Board of Port Commissioners, has certain reversionary rights with respect to the portion of the Oakland Army Base located within the Port Area should the Army seek to sell or lease the land.

Like FISCO, the Oakland Army Base is a mix of permanent and temporary buildings, with the permanent buildings being built of concrete before World War II, and the temporary buildings being constructed during the war. Unlike FISCO, however, the Oakland Army Base includes many post-1945 buildings. At the Oakland Army Base, however, portions of the base are dominated by post-1945 construction. For that reason, only a portion of the Oakland Army Base was determined eligible for listing in the National Register as a discontiguous historic district.

Historical Status of Buildings and Structures. The Oakland Army Base was inventoried and evaluated by Caltrans in 1990, in connection with the I-880 Cypress Freeway replacement project. Although the project included only a small portion of the Oakland Army Base, the study evaluated the entire base for potential National Register eligibility. This treatment of the base as a single unit is consistent with Caltrans policies and with generally accepted cultural resource inventory practices (Caltrans 1990).

The Caltrans study divided the base into northeast, northwest, and southeast quadrants. Historically, there was a southwest quadrant as well, but that portion of the World War II-era base has been demolished and is now controlled by the Port. The study concludes that only the northwest and northeast quadrants

retain enough unmodified World War II-era buildings to warrant listing in the National Register. The historic district is identified as three discontiguous segments, i.e., not all lands within the historic district are connected. The boundaries for the Oakland Army Base Historic District are shown on Figure 3-9.

Twenty-four buildings and structures at the Oakland Army Base have been determined eligible for listing in the NRHP; these are identified by building number in Table 3-7. All buildings outside the historic district are treated as noncontributors, as well as one modern building within the district boundaries. The noncontributors at the Oakland Army Base outnumber contributors. On October 5, 1990, the California SHPO concurred with the findings of the Caltrans survey regarding the NRHP eligibility of the Oakland Army Base Historic District (Gualtieri 1990).

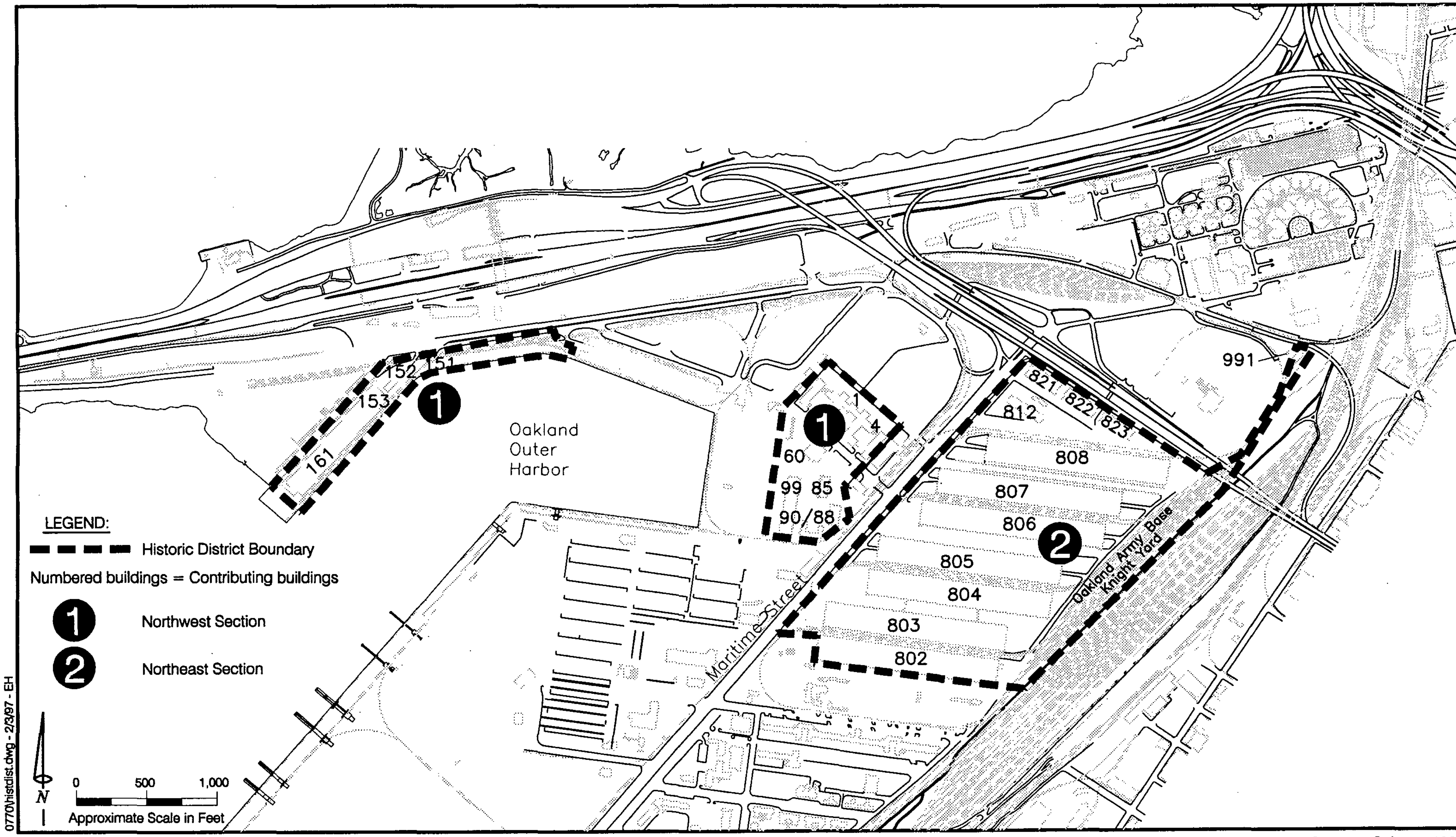
Table 3-7
Contributing Buildings within the Oakland Army Base Historic District

Northwest Section Building Number	Building Use	Northeast Section Building Number	Building Use
1	Administration	802	Warehouse
4	Vehicle shed	803	Warehouse
60	Cafeteria	804	Warehouse
85	Storehouse	805	Warehouse
88	Storehouse/telecommunications shop	806	Warehouse
		807	Warehouse
90	Administration	808	Warehouse
99	Shop	812	Repair shop
151	Wharf (pier) 6	821	Storehouse
152	Wharf 6-1/2	822	Storehouse
153	Wharf 7	823	Shop
161	Transit shed	991	Switch engine building Knight Yard

Source: Caltrans 1990.

Southern Pacific West Oakland Railyard

Historical Setting. Oakland played a key role in the development of the Southern Pacific Railroad during the 19th and early 20th centuries. Southern Pacific was a crucial contributor to the development of West Oakland. Southern Pacific selected Oakland as the western terminus of the line and its link to the rich trade of the San Francisco Bay Area. With completion of the Central Pacific Railroad line through Altamont Pass in 1869 (which roughly coincided with completion of the transcontinental Union Pacific and Southern Pacific lines), the Southern (then Central) Pacific Railroad connected the Bay Area to the rest of the nation.



The northwest and northeast sections of the Oakland Army Base contain enough unmodified World War II-era buildings to warrant listing on the National Register of Historic Places.

Source: Caltrans 1990

Oakland Army Base Historic District

Fleet & Industrial Supply Center Oakland
and Port of Oakland

Figure 3-9

Port of Oakland

During the early 1870s, the Central Pacific consolidated its many Bay Area repair facilities, switching yards, roundhouse, and other works into a major yard in Oakland. Between the mid-1870s and 1918, the yard was built up into one of the premier facilities on the West Coast. The functional heart of the Southern Pacific yard was repair and maintenance shops for railroad cars, both passenger and freight. Other Southern Pacific-owned facilities began to be constructed in the area as well, mostly built after 1918. These included a repair shop for the Southern Pacific-owned Interurban Electric Railway, a substantial bridge for the Interurban Electric Railway system, and other miscellaneous buildings.

Historical Status of Buildings and Structures. The Southern Pacific West Oakland Railyard was evaluated in 1990 by Caltrans, in relation to the I-880 Cypress Freeway project. The study concluded that within the Southern Pacific Railyard and within the project ROI is a National Register-eligible historic district, the Southern Pacific West Oakland Shops Historic District, the boundaries of which are shown on Figure 3-10.

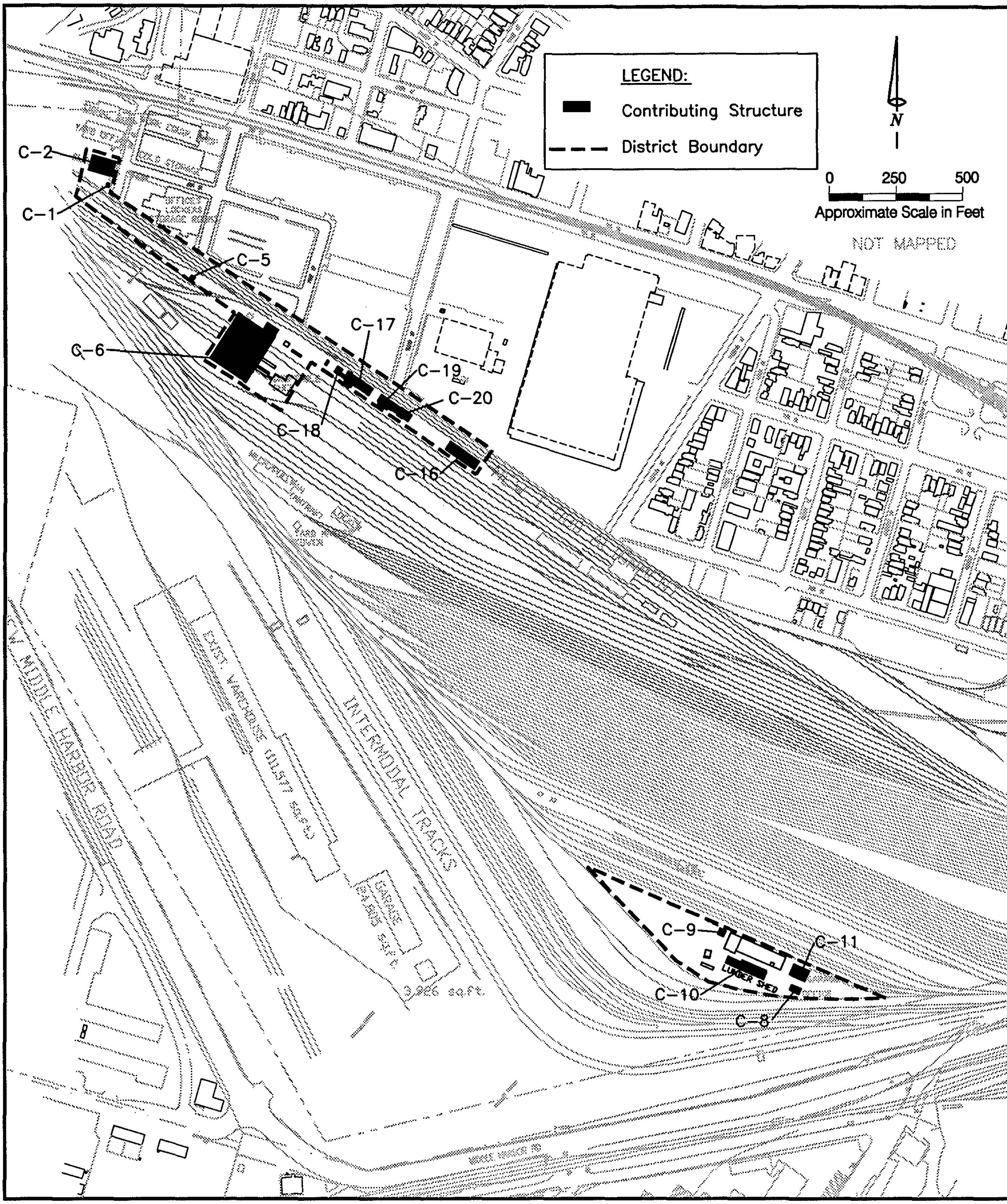
The Southern Pacific West Oakland Shops Historic District includes two separate subdistricts within the larger Southern Pacific West Oakland Railyard. The larger of the two is at the northern extreme of the Southern Pacific Railyard, from a little west of Bay Street to east of Wood Street; the smaller is south of the northern segment, separated from the larger segment by a bank of railroad tracks. The historic district includes 15 buildings, 13 of which were identified as contributors, nine in the larger subdistrict near Wood Street, four in the smaller subdistrict. The California SHPO concurred with this finding in October 1990 (Gualtieri 1990). The eligible buildings within this district are listed in Table 3-8.

Table 3-8
Register-eligible Buildings within the Southern Pacific West Oakland Shops Historic District

Contributors to Southern Pacific West Oakland Shops Historic District

Building Number	Building Use
C-1	Southern Pacific telephone exchange
C-2	Southern Pacific electrical shop
C-5	Signal tower
C-6	Paint shop
C-8	Repair yard office
C-9	Mill
C-10	Lumber shed
C-11	Freight depot
C-16	*Car lighting shop
C-17	*Service building
C-18	*Commissary building storeroom
C-19	*Commissary
C-20	*Master mechanic storeroom

Source: Caltrans 1990
*Indicates that the building has been demolished since 1990.



The Southern Pacific West Oakland Shops Historic District has two separate subdistricts. The larger of the two has nine contributing buildings. The smaller of the subdistricts, located across a bank of railroad tracks, contains four contributing buildings.

Southern Pacific West Oakland Shops Historic District

Source: Nolte and Associates, Inc. *September 1996* and Caltrans 1990

Fleet & Industrial Supply Center Oakland and Port of Oakland

Port of Oakland

Figure 3-10

Five buildings within the Southern Pacific West Oakland Shops Historic District were demolished by Caltrans and Southern Pacific Railroad as part of the reconstruction of I-880. A 1991 MOA between the Federal Highway Administration, Department of the Army, SHPO, and the ACHP called for recordation of these five buildings to the standards of the Historic American Building Survey (HABS)/Historic American Engineering Record (HAER) prior to demolition, as well as attempts to market the buildings for relocation off-site. The marketing attempts were unsuccessful and the buildings were recorded and demolished. The five demolished buildings were located in the larger subdistrict near Wood Street; this demolition removed more than half of the contributing buildings in that area.

Union Pacific Intermodal Railyard

Historic Setting. In 1874 the Corps developed a comprehensive plan for developing the channels of the Oakland Harbor. The initial element of that program was construction of two training walls, one on either side of the Oakland Inner Harbor. A training wall originally was seen as an underwater jetty made of stone and pilings and designed to train the channel, forcing it to scour itself and deepen the channel for navigational purposes. As envisioned, these walls would extend for 10,000 to 12,000 feet beyond the natural shoreline on both sides of the channel.

Construction began on the two walls in 1874 and continued intermittently through the early 20th century. With each new year of construction, the jetties were built higher until, by 1886, the decision was made to raise the training walls above the high-water mark, "converting them into jetties" (Lerner 1990).

The two training walls defined the alignments for moles constructed at the Alameda and Oakland sides of the Oakland Inner Harbor—the Alameda mole, built by the Southern Pacific Railroad, and the Western Pacific mole, built by the Western Pacific Railroad. The moles were built on fill placed behind the training walls, which creates some confusion as to the property title to the walls. The north training wall is backfilled and in places is covered by fill installed by the railroad many years after the wall was constructed. The wall is entirely outside the area leased to the Union Pacific Railroad, but is on property subject to the State tidelands grant to the Port of Oakland. The wall itself is presumed to belong to the federal government, which constructed it (Lerner 1990), but the underlying land is owned by the Port.

The Western Pacific (later acquired by the Union Pacific in 1983) has maintained its intermodal yard on land leased to it throughout the 20th century, first by the City of Oakland and later by the Port of Oakland.

Historical Status. The north training wall is the only property within the Union Pacific Intermodal Railyard that is eligible for listing in the National Register of Historic Places. The north training wall is visible for about 2,400 feet, extending

east from the western edge of the Union Pacific Intermodal Railyard. To the east, the training wall is completely buried under fill. It is presumed that more than 7,000 feet of the training wall are buried in this manner.

The property was evaluated by the Corps of Engineers in 1990; the Corps expressed the opinion that because of the importance that the Oakland Inner Harbor Project has had in the history of the region, innovative technology that was used in the initial dredging of the channel, and the fine quality of construction and appearance of the jetties, it is believed that the project is eligible for inclusion in the [NRHP] (Lerner 1990). For the purpose of this EIS/EIR, the training wall is treated as an eligible property.

Don Gary Investments, Ltd., and Space Assignment Leases

Historical Setting. The nine-acre Port property leased to Don Gary Investments, Ltd., and the Port's five-acre property leased to various tenants are located between the Oakland Army Base to the north and FISCO to the south. These two properties include several modern storage buildings, none of which are eligible for listing in the NRHP.

Historical Status. There are no buildings or structures on the two Port properties leased to Don Gary Investments, Ltd., or to various tenants on a space assignment basis that meet the eligibility criteria for listing in the NRHP.

3.5 VISUAL RESOURCES

Visual resources address the appearance of the landscape, proposed modifications to its appearance, and the factors influencing how the landscape is perceived by the viewing public. The landscape is composed of natural and engineered features. In the context of the FISCO/Vision 2000 project site, urban design issues are addressed in this section. A discussion of relevant plans, policies, and regulations governing visual and scenic resources is presented in Appendix E.

The ROI for this visual resource analysis includes a generalized viewshed extending out to a maximum of five miles, but limited in places by terrain and structures, such as Yerba Buena Island and the Oakland Bay Bridge to the north, the I-580 and I-980 freeways to the east, and downtown Oakland to the southeast. The ROI extends farthest to the west and south towards the southern San Francisco waterfront, Hunters Point, and northern Alameda.

The following sections provide a discussion of visual resource conditions within the ROI. Photographs referred to in this section can be found in Appendix A.

3.5.1 Regional Visual Landscape

The project site is located near the western extremity of the Oakland shoreline, on the east shore of San Francisco Bay. The site is bordered by the Oakland Inner Harbor and Alameda Island shoreline to the south, San Francisco Bay to the west, the Oakland Army Base to the north, and the Cypress replacement freeway to the east, which separates the site from the community of West Oakland. Other Port of Oakland terminals adjoin the site to the east and west along the shoreline.

The region surrounding the project site has a dominant maritime industrial and urban character set at the edge of a large body of water, San Francisco Bay. Topography is essentially flat. To the west, approximately three miles across San Francisco Bay, is San Francisco. The dense, high-rise, downtown section of Oakland is approximately one mile to the east. Alameda, with its narrow residential lots and compact shopping districts, lies approximately one mile to the southeast. NAS Alameda, with its flat expansive runways, military/industrial facilities, and residential areas, lies immediately to the south across the narrow Oakland Inner Harbor, which connects the Oakland waterfront with the open bay. Nearby multilane highways, built at grade and in elevated configurations, carry large volumes of traffic through the region. They include I-80 and the Bay Bridge, I-580, I-980, I-880, and Highway 24. The distinctive form of Yerba Buena Island is a regionally important landmark, located at the center of the Bay Bridge. Beyond the ROI, background views are enclosed by the East Bay hills and San Francisco heights.

3.5.2 Visual Landscape of the Project Site

Visual resources at the project site are shown on Figure 3-11 and are described in detail below. In general, the appearance of the overall project site is industrial in

character, dominated by warehousing, railyard facilities, containers, trucks, and the tall dockside cranes of the Port of Oakland. The landscape is largely devoid of vegetation and landscaping, with extensive flat, vacant areas of ground visible from some public locations.

3.5.2.1 FISCO

The landscape of the FISCO property is characterized by extensive military support facilities, including almost eight million square feet of warehouses, office buildings, railroads, docks, and three units of military housing. Occupying 528 acres, FISCO is laid out on a flat, generally regular grid pattern of streets. The site is composed of the following four zones from west to east:

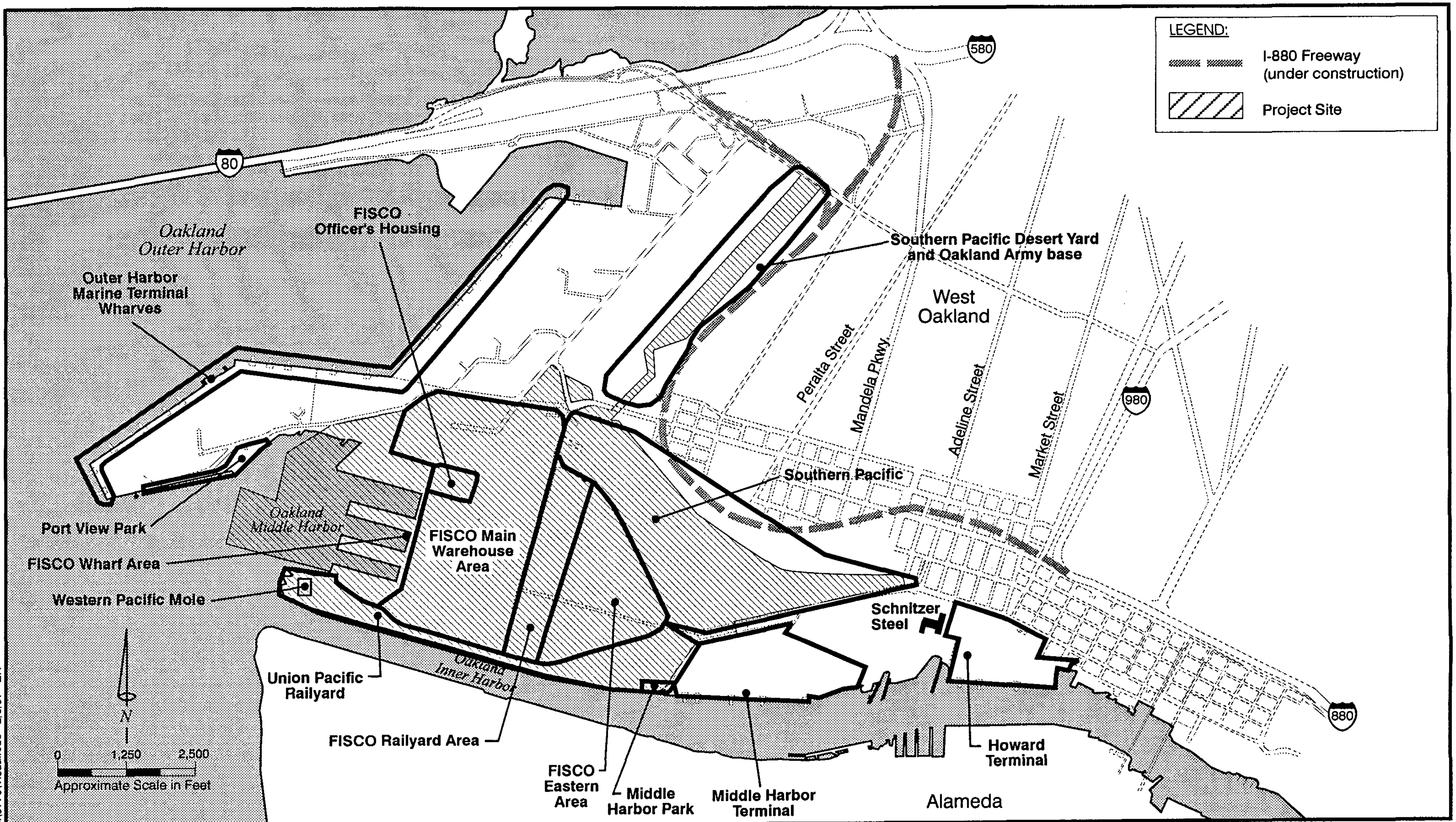
- Oakland Middle Harbor berths and wharf area;
- The main warehouse area;
- The FISCO railyard area; and
- The eastern area.

The following description is based on site reconnaissance and reference to the Base Exterior Architecture Plan (BEAP) (US Navy 1984a) and Naval Supply Center Oakland Master Plan (US Navy 1988c). The four areas of the former base have the following visual characteristics:

Oakland Middle Harbor Wharf Area: The FISCO wharves define the eastern edge of the Oakland Middle Harbor where they form a semi-enclosed bay almost half a mile wide. The piers and docksides are dominated by vessels such as the USNS Mercy (Appendix A, photo 1) and maritime administration ships with cranes (Appendix A, photo 7). Some limited potential views toward San Francisco, Yerba Buena Island, the Bay Bridge, and the Outer Harbor Marine Terminals could be obtained from 3rd Street between buildings and vessels, if public access were to be provided.

The Main Warehouse Area: This area, between 3rd Street and 6th Street, contains large individual buildings arranged in a regular east-west grid pattern and surrounded by paved surfaces and loading docks. Most of the buildings occupy entire blocks about 600 feet long and range from two to six stories. The largest buildings, from five to six stories high, are the concrete office/warehouse buildings near the Maritime Street overpass. The lower buildings in the remainder of this area impart a prevailing horizontal appearance to the urban form (Appendix A, photo 2). Most of the buildings have simple geometric forms and minimal detailing, typical of industrial structures.

Within this area, the officers housing area and adjoining landscaped area create a strong contrast to the industrial character and scale of the warehouses. Bounded by E and G Streets between 3rd Street and 4th Street, this area forms a green



In general, the appearence of the overall project site is industrial in character.

Source: Port of Oakland 1996

Visual Resources at the Project Site

Fleet & Industrial Supply Center Oakland
and Port of Oakland

Port of Oakland

Figure 3-11

pocket featuring three suburban houses with historic-appearing architecture and a linear landscaped area with lawns, dense shrubs, and mature trees. Although they are older structures (most built prior to 1946), the three homes appear well-maintained and in relatively good condition (Appendix A, photo 3).

The FISCO Railyard Area: This area near the central portion of the base is bounded by 6th and 8th Streets between Middle Harbor Road and the Union Pacific lands to the south. It forms a largely open expansive corridor running north and south, without notable visual features.

The Eastern Area: This part of the FISCO property, east of the railyard area, is occupied by the Port's Harbor Transportation Center, with extensive frontage on (and visibility from) Middle Harbor Road. It is comprised of several long low warehouses, oriented north-south. The relatively new two-story blue and gray buildings of the Transportation Maintenance Shop are prominent at the eastern edge of the property. The area also includes some smaller buildings.

3.5.2.2 Union Pacific Intermodal Railyard

This property forms a narrow strip of land over a mile long, separating the FISCO site from the Oakland Inner Harbor, partly enclosing the Oakland Middle Harbor on its south side. The property is leased to Union Pacific and is the site of an intermodal rail terminal. The area is largely without buildings and offers potential views across and along the Oakland Inner Harbor to Alameda and San Francisco. However, there is no current public access to this area and no future plans to offer public access, except for possibly at the westernmost point of the railyard (i.e., the Western Pacific mole).

3.5.2.3 Southern Pacific West Oakland Railyard

The Southern Pacific railyard occupies a large area north of Middle Harbor Road, with extensive rail tracks, various linear office and industrial buildings, utilities, and other facilities related to the railyard functions. Views into the area are affected by frequent long trains with stacked containers entering the yard for loading and consolidation. A few older buildings are visually more distinctive than most in the study area. Examples include older wooden structures (Appendix A, photo 4) and brick buildings with considerable detailing, although none of these are highly visible from public viewpoints. Much of the site is vacant, apart from the railroad tracks and paved areas. Overhead utilities and lighting for nighttime operations are highly visible within the closer viewshed of the ROI, together with existing high-mast lighting at the marine terminals throughout the Port. The older electrical transmission line structures, which have an unusual lattice design (Appendix A, photo 5) have been identified as a historic landscape feature by some local neighborhood representatives.

3.5.2.4 Oakland Army Base

The Oakland Army Base occupies a large flat area north of the Southern Pacific Railyard between Maritime Street and the I-880 Cypress Freeway, which is under

construction. The base contains a mixture of industrial/warehouse buildings and some military housing. The appearance of the area from public roads is mainly of utilitarian structures and storage space, although some landscaping and individual buildings of more distinct architectural character can be observed.

The Southern Pacific Desert Yard forms a long narrow corridor of land with several rail tracks running along the eastern boundary of the Army Base. A row of mature evergreen trees forms some screening along the property boundary with the Army base.

3.5.3 Visual Landscape of Areas Adjoining the Project Site

The following section describes the visual character of the Oakland Inner Harbor, the Oakland Outer Harbor, the West Oakland community, NAS Alameda, the Alameda Ferry Terminal, and Jack London Square.

3.5.3.1 Outer Harbor Marine Terminal Area (Port of Oakland)

The Port of Oakland occupies a large area along the eastern shore of the Oakland Outer Harbor, with eight major terminals directly opposite the Bay Bridge across the harbor. The large mechanized cranes associated with the terminals, as well as the succession of very large ocean-going cargo vessels that dock at these terminals, give the area a distinct industrial-waterfront character (Appendix A, photo 6). Expansive cargo container storage areas and numerous warehouses are visible in this area. Floodlighting on relatively high-mast structures permits loading on a 24-hour basis. The lighting is visible at night throughout the immediate Bay Area.

3.5.3.2 Oakland Inner Harbor Marine Terminal Area (Port of Oakland and Private Properties)

The area immediately east of the project site, which includes the Middle Harbor Terminal and Howard Terminal, also has an industrial waterfront character, with container storage, rail tracks, industrial buildings, scrap yard (owned by Schnitzer Steel), floodlighting in some areas, and the visually prominent dockside cranes.

Middle Harbor Park occupies about 250 feet of shoreline in this area, at the eastern end of the Union Pacific Intermodal Yard and adjoining the Middle Harbor Terminal. It is a small area of about one acre, which contrasts with the surrounding land uses and is characterized by grass, trees, and a small pier.

3.5.3.3 West Oakland Community

The largely residential neighborhoods of West Oakland are characterized by older, single-family dwellings with a mixture of commercial, industrial, and multi-family housing in some areas. Most of the single-family housing consists of one- to two-story homes, some with Victorian architecture typical of California suburbs established early in the century. The housing and landscaping are in various states of repair and maintenance. Housing in the vicinity of 3rd Street borders the Southern Pacific Railyard and is affected currently by the

construction of the I-880 Cypress Freeway. The fringes of the neighborhood are influenced by the cluttered industrial landscape of the Southern Pacific Railyard.

3.5.3.4 NAS Alameda

The landscape of NAS Alameda is characterized by various military support facilities, including aircraft hangars, military housing, and aircraft runways. There is an internal network of streets which, in the residential areas, are tree-lined and shady.

NAS Alameda has approximately two miles of shoreline across the Oakland Inner Harbor from the project site. Land uses that occur along this shoreline and in view of the project include the following:

- Open runways and tarmac area; and
- The administrative and community support campus near the central portion of the base, with buildings of one to three stories, open lawns, and landscaping.

The military residential neighborhoods near Main Street have limited views of the project site due to screening by trees and buildings. Most homes do not have a clear view of the site.

3.5.3.5 Alameda Ferry Terminal

The ferry terminal provides waterfront access for the Oakland/Alameda passenger ferries. The site is characterized by the terminal structure, landscaping, parking, and views across the Oakland Inner Harbor toward the project area and the Middle Harbor Terminal.

3.5.3.6 Jack London Square

Jack London Square is a specialized commercial development featuring restaurants, entertainment, specialty shops, boat sales, and a marina. It is located on the Oakland waterfront, east of the Port's Howard Terminal, at the end of Broadway. Most of the development at Jack London Square has a waterfront/marina theme or character. Boardwalks along the shore and waterfront restaurants and a hotel provide opportunities for panoramic views of the Oakland Inner Harbor and the opposite shore. The Oakland Ferry terminal and Roosevelt Pier are located at the west edge of Jack London Square.

3.5.4 Views and Visibility of the Project Site

The following sections discuss the various areas that provide sensitive views of the project site and the parts of the site that are seen from each area. Views are considered sensitive when foreground or middle ground views are experienced by relatively large numbers of people from locations with public access, including commercial centers, recreation areas, and transportation routes, or when experienced from private residences. Foreground views extend from the viewer

to distances up to 0.5 mile; middle ground views extend from 0.5 miles up to three miles. In the low-lying urban/industrial context of the Oakland shoreline, views at distances greater than three miles are considered to be background.

3.5.4.1 Parks and Public Use Areas

The following locations and recreational/open space uses are considered to have high visual sensitivity due to recreational uses with emphasis on sightseeing.

Port View Park near the 7th Street marine container terminal provides foreground views of the FISCO berths in the Oakland Middle Harbor, the Western Pacific mole, and buildings along 3rd Street (Appendix A, photo 7). Views are also obtained of the mouth of the Oakland Inner Harbor, west end of NAS Alameda, and out to the bay and southern San Francisco waterfront (Appendix A, photo 8). The facilities at Port View Park are used primarily by local residents for fishing and recreation.

Middle Harbor Park on the Oakland Inner Harbor provides some views of the Union Pacific yard area and shoreline, with views focused down the channel to the east and west. Trees located on the northern edge of the park, together with buildings and container storage, limit views north towards the Southern Pacific yard. The park is not highly visible, and has limited use.

Jack London Square receives extensive public use, consistent with its waterfront commercial character and tourist destination. Outdoor activities, ferry use, and restaurants with decks exemplify sightseeing opportunities, with important views down the Oakland Inner Harbor in both directions and across to the FISC Annex docks. From upper-story levels, the area provides middleground views down the channel toward the FISCO site and Oakland Outer Harbor terminals. Ground level views are blocked or dominated by the Howard Terminal and Middle Harbor Terminal. However, from Jack London Village Estuary Park (Appendix A, photo 9), distant views of the Union Pacific Intermodal Railyard are obtained.

The Alameda Ferry Terminal and adjoining shoreline access (and parking lot) provide foreground views of the eastern end of the Union Pacific Intermodal Railyard and the adjoining shoreline (Appendix A, photo 10). Views of the rest of the project site are limited by the existing containers on the Union Pacific yard, the Middle Harbor Terminal facilities, and ships berthed along the Oakland Inner Harbor. However, some spectacular views of the panorama from San Francisco along the entire length of the Bay Bridge is obtained from this limited stretch of waterfront public access.

A proposed park is planned at the eastern anchorage of the Bay Bridge, as part of the Caltrans improvements in this area. However, until this park is constructed, there is no public access to the south side of the bridge anchorage. Any public views from this location would be dominated by the existing marine terminals and cranes in the foreground along the Oakland Outer Harbor. Proposals for the

Bay Trail along the waterfront in this area are being developed by East Bay Regional Park District in association with other agencies, including Caltrans, the Port of Oakland, and BCDC (see Section 3.1, Land Use). The precise location of these trail facilities is not known at this time.

3.5.4.2 Water

The Oakland/Alameda Ferry and pleasure boats provide foreground, middle ground, and background views of the project site from San Francisco Bay and the Oakland Inner Harbor, as well as background views of the East Bay hills and downtown Oakland skyline. Incoming boats to the Oakland Inner Harbor initially gain diverse foreground views of the FISCO wharves and piers, Maritime Administration cranes, and berthed Navy vessels. Thereafter, views of the Union Pacific yard have few positive visual qualities.

3.5.4.3 Major Transportation Corridors

Except for the San Francisco Bay Bridge (I-80), most views of the project site occur from major arterials and rail corridors. These views are considered to be of moderate visual sensitivity.

Views from the Bay Bridge in the direction of the project site are obtained primarily by high volumes of eastbound traffic at a distance of at least two miles. The right side guardrail is sufficiently high to block the view from most passenger cars although, towards the eastern end of the bridge, open views to the Oakland Outer Harbor and FISCO facilities can be obtained. From taller vehicles, such as vans or buses, the area is clearly visible, with the Oakland Outer Harbor cranes, container ships, and taller white buildings of the FISCO site prominent against the backdrop of downtown Oakland and the East Bay hills.

Visibility of the site from I-980 is blocked by foreground buildings. The new I-880 Cypress Freeway, which adjoins the Southern Pacific West Oakland Railyard, would provide foreground views of the project site, with most opportunities to view the project site from the elevated sections east of Peralta Street and approaching West Grand Avenue.

The primary local arterials that provide foreground views (and most of the visual access) to the project site, include Middle Harbor Road, 7th Street, and Maritime Avenue. These are not considered to be highly sensitive viewing locations because of predominantly industrial use of the roadways. Recreational travel is limited to local residents accessing the waterfront parks in the project vicinity.

Riders on Bay Area Rapid Transit (BART) obtain open elevated views of the northern borders of the FISCO site and Southern Pacific yard. However, the whole area is characterized by industrial uses, and it is difficult to identify individual features or locations in these short duration views.

Amtrak provides rail passengers with foreground views of the Southern Pacific railyard and parts of the FISCO site. Again, this is in the context of the overall industrial character of the area in which it is difficult to identify individual or landscape features.

3.5.4.4 Residential Areas

High sensitivity views from homes are limited to a small number of dwellings at the southwestern edge of the West Oakland community near Peralta Street and 3rd Street, where upper stories and yards provide some foreground views of the Southern Pacific railyard and Caltrans construction corridor. With completion of the new freeway, soundwalls, and other right-of-way structures, these views are expected to be very limited or nonexistent. Existing middleground views from residential areas in Alameda are limited by distance and screened by trees and buildings.

3.5.5 Potential On-site Viewing Opportunities

The project site provides potential high-quality viewing opportunities for future public access sites, in addition to those obtained from existing public access points. Existing public views of the distinctive panorama of the San Francisco skyline, San Francisco Bay, Bay Bridge, Yerba Buena Island, and background ridges are restricted by the lack of public access and are limited to partial views from Middle Harbor Park. The Western Pacific mole and adjacent waterfront along the Oakland Inner Harbor provide open panoramic view opportunities that cannot be obtained (at these shorter viewing distances) from any other shoreline vantage point. There are also viewing opportunities from the entire Oakland Middle Harbor waterfront, although these are partly blocked by the vessels, cranes, container storage, and other structures of the Oakland Outer Harbor marine terminal area.

3.6 BIOLOGICAL RESOURCES

This section describes biological resources at and near the project site. Biological resources include vegetation, wildlife, special status species, and sensitive habitats that are on or in the general vicinity of the site. A description of applicable federal and state regulations for biological resources is presented in Appendix E. The ROI for biological resources includes the project site, adjacent waterways, and areas within a half mile of the edge of the site. These off-site resources may indicate the potential for sensitive species and habitats on the site. A list of animal and plant species that have been observed or are expected to occur within the ROI is provided in Appendix H.

3.6.1 Methodology

Biological resource data was collected from numerous sources including the California Natural Diversity Data Base (CDFG 1995), a species list from the United States Fish and Wildlife Service (USFWS 1994b), the California Native Plant Society Database (Skinner and Pavlik 1994), and other environmental documents cited in the text. The USFWS and National Marine Fisheries Service (NMFS) also were contacted to obtain current information on sensitive species potentially occurring in the project area (See Appendix H for the agencies' responses).

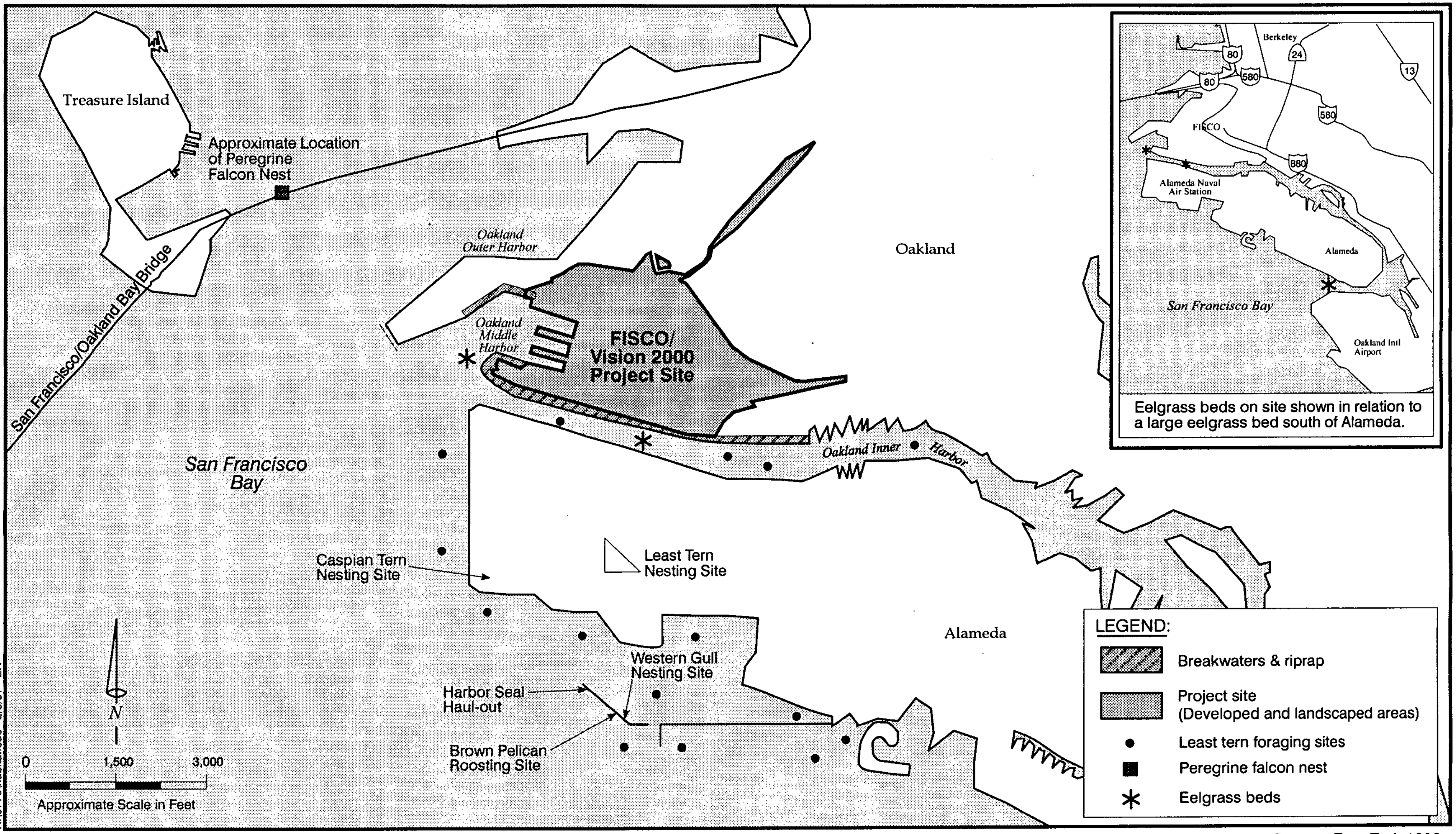
Three site visits were made June 3 and 24 and July 3, 1996, by a biologist to evaluate existing conditions. Personnel at the Navy-EFA West, the Port of Oakland, and the USFWS were consulted for information regarding the presence of eelgrass (*Zostera* spp.), the potential use of the area by sensitive species, and historic uses of the project site.

3.6.2 Habitats and Vegetation

Human-made habitats dominate the site, which is located almost entirely on bay fill and is extensively developed. These habitats are classified into four types—rock breakwaters, piles and riprap, landscaped areas, developed areas, and harbors. The locations of these habitat types are shown on Figure 3-12, along with locations of eelgrass beds and least tern (*Sterna antillarum browni*) foraging areas.

3.6.2.1 Rock Breakwaters, Piles, and Riprap

A two- to eight-foot wide strip of usually sparse vegetation (dominated by grasses, fennel [*Foeniculum vulgare*], a mustard [*Brassica* sp.], and blackberries [*Rubus* spp.]) grows between the breakwater and the western edge of the developed Union Pacific Intermodal Railyard for most of its length. Toward the northwestern tip of the Western Pacific mole, this vegetated strip widens to approximately 30 feet for a length of 100 to 150 feet, potentially providing cover for small mammals and birds in that area. No terrestrial vegetation is found directly on the breakwaters and riprap. Sea lettuce (*Ulva lactuca*), turkish towel (*Gigartina exasperata*), and other seaweeds and algae grow on hard substrata (i.e., breakwaters, riprap, and piles) in the intertidal zone.



Local sensitive species resting, foraging, and nesting are shown along with habitat types. Landscaped areas are too small at this scale to appear on the map. Least terns spend about 2-3 percent of their foraging time in the Oakland Inner Harbor.

Source: Tetra Tech 1996

Habitats and Known Wildlife Resources Near the Project Site

Fleet & Industrial Supply Center Oakland and Port of Oakland

Port of Oakland

Figure 3-12

3.6.2.2 Landscaped Areas

The vegetation in the landscaped areas of the site are characterized by ornamental and other mostly exotic species in landscaped lawns and small-scale plantings. These areas generally are located near buildings on the FISCO and Southern Pacific Railroad properties. Inland of breakwaters along the Oakland Inner Harbor is a set of large raised beds containing landscaped trees and shrubs. Grasses in the landscaped areas include perennial rye grass (*Lolium perenne*), zorro annual fescue (*Vulpia myuros*), and Kentucky bluegrass (*Poa pratensis*). Landscaping shrub species include star acacia (*Acacia verticillata*), Sydney golden wattle (*Acacia longifolia*), myoporum (*Myoporum laetum*), privet (*Ligustrum texanum*), Kapuka tree (*Griselinia littoralis*), India hawthorne (*Raphiolepis indica*), bottle brush (*Callistemon citrinus*), cotoneaster (*Cotoneaster* sp.), and oleander (*Nerium oleander*) (US Navy 1986b).

3.6.2.3 Developed Areas

The site is dominated by developed areas consisting primarily of railroad beds, roads, buildings, and parking lots with little vegetation.

3.6.2.4 Harbors

Phytoplankton classes in the harbors surrounding the project site include diatoms (Bacillariophyceae), coccolithophores (Haptophyta), dinoflagellates (Pyrrophyta), silicoflagellates (Chrysophyta), cryptomonads (Cryptophyceae), and green algae (Chlorophyceae) (US Army Corps of Engineers 1994).

Eelgrass beds are relatively rare in San Francisco Bay, totaling approximately 300 acres; however, small patches of eelgrass have been observed near the project area. The depth of the water in harbors surrounding the site precludes most eelgrass growth. In the turbid San Francisco Bay, a lower depth limit for eelgrass of three to six feet below MLLW can be reasonably expected. Patches of eelgrass were observed in the Oakland Inner Harbor at the tip of the Western Pacific mole during a July 3, 1996, survey. The largest patch, near the Oakland Middle Harbor, is 35 to 40 feet long and about five feet wide and is sparse. Second largest is a patch roughly 15 feet long and about three feet wide one quarter mile northwest of the Middle Harbor Park along the Oakland Inner Harbor. This patch of eelgrass is established in a shallow area created by a partial collapse of riprap caused by temporarily increased ferry boat traffic after the 1989 Loma Prieta earthquake. Three other small patches of eelgrass were observed near the two patches.

3.6.3 Wildlife

The site's wildlife community is made up of species that are tolerant of human disturbances and are commonly found on urbanized developed sites; however, a small number of sensitive but adaptable species use the ROI as well. Wildlife descriptions are discussed in relation to human-made habitat types. Special status wildlife species are discussed in Section 3.6.4.

3.6.3.1 *Rock Breakwaters, Piles, and Riprap*

Several nesting western gulls (*Laurus occidentalis*) were observed at the tip of the Western Pacific mole during the June 3rd and July 3rd surveys. A cat, probably associated with employee trailers on the Union Pacific site, and California ground squirrels (*Citellus beecheyi*) were also observed in that area. Norway rats (*Rattus norvegicus*) have been observed around the riprap in the Oakland Middle Harbor (Guldner, E., June 5, 1996, personal communication). Black-crowned night herons (*Nycticorax nycticorax*) frequent riprap areas on Alameda Island (US Navy 1995b) and may make similar use (e.g., foraging) of these areas on the project site. Mollusks and microalgae typical to San Francisco Bay inhabit hard substrata in the intertidal zone.

3.6.3.2 *Landscaped Areas*

Landscaped areas around buildings and parks are used primarily by animals tolerant of urban conditions, such as scrub jays (*Aphelocoma coerulescens*), sparrows, house finches (*Carpodacus mexicanus*), American robins (*Turdus migratorius*), crows (*Corvus brachyrhynchos*), and starlings (*Sturnus vulgaris*) (US Navy 1986b). Field mice (*Peromyscus* spp.) and moles (*Scapanus latimanus*) also use these areas. Raptors, including American kestrels (*Falco sparverius*) and American peregrine falcons (*Falco peregrinus anatum*), have been reported occasionally at the site (US Navy 1986b and Feeney, L., June 13, 1996, personal communication). Burrowing owls (*Speotyto cunicularia*) have been observed in holes in the grassy area of Middle Harbor Park (Schwarz, C., October 23, 1996, personal communication).

3.6.3.3 *Developed Areas*

Typical urban wildlife, such as feral cats (*Felis catus*) and stray or feral dogs (*Canis lupus familiarus*), pigeons (*Columbia livia*), and mourning doves (*Zenaida macrowra*) may be observed in the developed areas. Wildlife species from landscaped areas may use this habitat type as well, though perhaps at lower densities considering the lack of cover and forage.

3.6.3.4 *Harbors*

The shallow waters of San Francisco Bay provide foraging habitat for the California least tern (*Sterna antillorum browni*), the California brown pelican (*Pelecanus occidentalis californicus*), and winter-run Chinook salmon (*Oncorhynchus tshawytscha*) (Port of Oakland and US Army Corps of Engineers 1994, USFWS 1996, NMFS 1996), all of which may use the harbor areas. Due to the developed nature of the site and the lack of cover and forage in the area, these species may be present temporarily in the waters of the harbors surrounding the site but do not remain for extended periods.

Pacific herring (*Clupea pallasii*) spawn periodically in the Oakland Inner Harbor, Outer Harbor, and Middle Harbor. Typically, herring spawn between December and February, but spawning activity has been documented as late as mid-March (CDFG 1996). When herring spawn in the Oakland/San Francisco portion of the

bay, their locations can vary. During the 1987-1988 and the 1991-1992 spawning seasons, herring use of the Oakland Inner Harbor was high, as indicated by estimated egg production at 11,750 and 16,500 tons, respectively (CDFG 1996). Pacific herring spawn in shallow and intertidal areas on rocks, seaweed, and seagrass (Frey 1971 and SFEP 1992) and on other hard surfaces, such as piles, nets, and boat bottoms. Although use of the area by herring appears to have dropped off since 1993, herring remain the principle nonsensitive fish species of concern in the Oakland Inner Harbor.

The California Department of Fish and Game (CDFG) found that the central portion of San Francisco Bay, which includes the Oakland Inner Harbor, Middle Harbor, and Outer Harbor, consistently had a higher density of fish than any other area of the bay between 1981 and 1986. According to CDFG, this high density is largely due to the dominance of northern anchovy at the open water sites. Seasonally common fish species observed in the beach seine survey in the central bay, from most to least abundant, are topsmelt (*Atherinops affinis*), jacksmelt (*Atherinopsis californiensis*), Pacific herring, northern anchovy (*Engraulis mordax*), arrow goby (*Clevelandia ios*), striped bass (*Morone saxatilis*), shiner surfperch (*Cymatogaster aggregata*), yellowfin goby (*Acanthgobius flavimanus*), and Pacific staghorn sculpin (*Leptcottus armantus*) (Hieb 1994). Other species that are common in the bay are flatfish species, such as English sole (*Parophrys vetulus*), starry flounder (*Platichthys stellarus*), and California halibut (*Paralichthys californicus*). These species typically are found in sandy-silty areas with patches of vegetation (US Navy 1988b), habitat that is uncommon in the Oakland Inner, Middle, and Outer Harbors.

Zooplankton found in San Francisco Bay are the preferred food for northern anchovy and topsmelt, which are an important part of the diet of the California least tern (US Navy 1988a). Based on the list of fish dropped by the California least terns at NAS Alameda, approximately 60 percent were either topsmelt or jacksmelt (Hieb 1994).

Channel bottoms and surrounding areas provide habitat for worms, crustaceans, shellfish, and other invertebrates. Studies in the mouths of the Oakland Outer Harbor and Inner Harbor documented the presence of a variety of soft stratum benthic organisms, including *Eteone* sp., *Gemma gemma*, *Streblospio benedicti*, *Leptochelia dubia*, *Corophium* sp., and *Macoma nasuta* (US Navy 1988b).

Many of the benthic organisms in San Francisco Bay are introduced species, which are generally better adapted to changes in bay water quality than the native species (US Navy 1988b). A document prepared for the USFWS characterized the bay and the San Joaquin/Sacramento River Delta as "the most invaded aquatic ecosystem in North America." According to the report, there are no shallow water habitats in the area that have not been invaded by non-native species (Perlman 1996). Due to its higher salinities, the central bay supports a larger

percentage of marine species than other areas of the Bay (Nichols and Pamatmat 1988; Thompson et al. 1994).

Nonnative species have been released from ballast water of breakbulk (not containerized) cargo ships, tankers, cruise ships, military ships, and other sources. The relative contribution on nonnative species introductions from the various sources has not been evaluated. Only about two percent of the ship cargo entering Oakland is breakbulk, and current legislation encourages the exchange of ballast water at sea rather than in port. In addition, container ships coming into Oakland from Asian ports, where many of the nonnative species come from, arrive more loaded than when they leave. Therefore, these ships take on ballast water from the San Francisco Bay to make up for the lighter load rather than discharging Asian ballast water.

Marine mammals observed in the waters off Bay Area harbors include harbor seals (*Phoca vitulina*), California sea lions (*Zalophus californianus*), a Steller sea lion (*Eumetopias jubatus*), white-sided dolphins (*Lagenorhynchus obliquidens*), and harbor porpoises (*Phocoena phoceona*) (Feeney 1994). Harbor seals and California sea lions have been observed in the Oakland Inner Harbor (Feeney, L., June 13, 1996, personal communication). A study of harbor seals throughout San Francisco Bay observed that they eat primarily yellowfin goby, plainfin midshipmen (*Porichthys notatus*), white croaker (*Genyonemus lineatus*), English sole, staghorn sculpin, anchovies, and topsmelt (Kopec 1994).

3.6.4 Special Status Species

Special status species include those that are listed or proposed for listing by the USFWS or the CDFG as endangered, threatened, or rare; candidate species for listing; species of concern; and species of special concern. Also included as special status species are plants listed by the California Native Plant Society (CNPS) as rare or endangered. Special status species are provided varying levels of legal protection under the federal and state endangered species acts, depending on their classification.

Endangered and threatened species and those that are being considered as candidates for listing are presented in Table 3-9. The table represents species that are likely to occur on the project site. None of the species listed in the table are known to nest on the site. The California least tern, California brown pelican, and American peregrine falcon occur within the ROI. The bird species probably appear within the ROI since they are mobile species that have been documented within one mile of the project site. NMFS reports that winter-run Chinook salmon may occur in the project area (NMFS 1996). Additional information on these four species follows. Appendix H contains additional species, including species of special concern and listed species that are not likely to occur in the ROI.

3.6.4.1 California Least Tern

Although the federal- and state-listed California least tern does not nest at the project site, the species has been nesting at NAS Alameda, approximately 3/4 of a mile from the project site, since 1967. A portion of the latter site was recognized officially by the CDFG as a breeding site in 1976.

The preferred foraging habitat for California least terns nesting at NAS Alameda is an area south of Alameda Island. However, terns were observed to spend about two to three percent of their foraging time (amounting to approximately 5 out of 209 hours of foraging from 1984 to 1993) in the Oakland Inner Harbor during the nesting period at Alameda which generally occurs from April to August (US Navy 1984b, 1985, 1986a, 1987a, 1988a, 1990a, 1990b, 1992a, 1993, 1995a).

Table 3-9
Species with Endangered and Threatened Status and Proposed Species That are Likely to be Present in the ROI of the FISCO/Vision 2000 Project Site

Common Name *Scientific Name*	Federal Status*	State Status*	Occurrence in the ROI*
Winter-run Chinook salmon *Oncorhynchus tshawytscha*	FT	SE	P
Birds			
American peregrine falcon *Falco peregrinus anatum*	FE	SE	FP
California brown pelican *Pelecanus occidentalis californicus*	FE	SE	FO
California least tern *Sterna antillarum browni*	FE	SE	FS

Sources: California Department of Fish and Game 1995; Skinner and Pavlik 1994; US Fish and Wildlife Service 1996; NMFS 1996

*NOTES:

Federal Status

FE - Endangered
FT - Threatened

State Status

SE - Endangered

Occurrence in the ROI

N - None
FO - Forages Offshore
FS - Forages in Shallows
FP - Forages Periodically
P - Possible

3.6.4.2 California Brown Pelican

California brown pelicans, a federal- and state-listed endangered species, forage for fish over open water areas and may use the channel and harbor areas at the site. One of this species' roosts is located off the southwest corner of NAS Alameda; however, no roosts are located at the site.

3.6.4.3 American Peregrine Falcon

Ten to 20 of these federal- and state-listed endangered falcons are thought to range over the San Francisco Bay Area and delta region. Prey species for this falcon are predominantly birds from the size of mallard ducks to hummingbirds (Bell, D., June 14, 1996, personal communication), including pigeons, blackbirds, and sparrows.

There is an American peregrine falcon nest on the Bay Bridge just east of Yerba Buena Island. The female that uses this nest forages frequently in downtown Oakland and has been sighted passing over the site (Bell, D., June 14, 1996, personal communication). This female is not the only individual of this species that might forage on the site. Two other local nests are located on the Bay and Golden Gate Bridges. Since American peregrine falcons like to hunt from high vantage points, falcons may use inactive cranes while hunting. During California least tern nesting studies, observers noted peregrine falcon activity in the vicinity of the Alameda least tern colony. During these studies, at least one biologist observed a falcon perching on a Port crane (Feeney, L., June 13, 1996, personal communication). Since prey species are available on the project site, falcons may forage there; one successful hunt on the site has been observed (Bell, D., June 14, 1996, personal communication).

3.6.4.4 Winter-run Chinook Salmon

The population decline of the federally-threatened winter-run Chinook salmon is due to modifications and loss of spawning and rearing habitats in the upper Sacramento River system (US Army Corps of Engineers 1992). A 1996 letter from NMFS noted that the Sacramento River winter-run Chinook salmon may occur at the project site (NMFS 1996); however, no critical habitat for the species exists in the vicinity of the site.

Winter-run Chinook salmon spawn in the upper reaches of the Sacramento River. During the spawning migration, the salmon enter San Francisco Bay from the Pacific Ocean, then head north to the Sacramento River. Salmon return through central San Francisco Bay to the ocean as one-year-old juveniles (US Army Corps of Engineers 1992). Both migration events occur from November to May, but the peak numbers of adults pass through in December and January, while juveniles migrate January through April (US Army Corps of Engineers 1992). Juveniles transit through the Bay into the ocean is rapid (approximately one week), so they are expected to take the most direct route to the ocean (US Army Corps of Engineers 1994). Since the adults spawn in the Sacramento River system, the most direct migration route for both the adults and juveniles is mainly north of Alcatraz Island (US Army Corps of Engineers 1994). Adults typically concentrate in waters around Angel Island and Tiburon (US Army Corps of Engineers 1992). The winter-run Chinook salmon may occasionally stray from its migration route into the vicinity of the project site. Although the NMFS reports that the winter-run Chinook may occur at the project site (NMFS

1996), the Oakland harbor area is an unlikely location and type of aquatic environment to be frequented by salmon (US Army Corps of Engineers 1992).

3.6.4.5 Sensitive Habitats

The project site has one type of sensitive habitat, eelgrass (*Zostera marina*) beds, represented in two locations (as described previously in Section 3.6.2). These eelgrass beds are approximately 2,300 feet apart and are relatively small. Their size is probably limited by deeper areas around their borders. The small size of the beds may limit their suitability as habitat for fish. Their overall production is likely to be low when compared to other beds in San Francisco Bay (SFEP 1992).

Approximately 48 species of seagrasses are known; however, only eelgrass is present in San Francisco Bay. Established seagrass beds typically form highly productive habitats that stabilize sediment, provide substrate for epiphytes, produce organic material, and export detritus (Phillips and Menzie 1988). They also provide habitat for invertebrates and provide forage, spawning, and nursery areas for numerous species of fish.

Key factors influencing the establishment and persistence of seagrass beds include substratum, light, salinity, and temperature. These factors will affect both the ability of the seagrass to become established and its persistence once established. Seagrass beds occur in shallow tidal areas where the substratum is sand or mixed mud and sand (Phillips and Menzie 1988).

Eelgrass is generally found in the intertidal to subtidal zones. In clear water, it may extend down to 98.5 feet, whereas in turbid waters it is limited to about four to 6.5 feet in depth (Phillips and Menzie 1988). Physiological tolerances to desiccation generally will control the upper limit of distribution, while increased turbidity will raise the lower limit of distribution of seagrasses (Zieman and Zieman 1989). In the turbid San Francisco Bay, a lower depth limit of three to six feet below MLLW can be reasonably expected.

The environmental tolerances of eelgrass are very wide. Eelgrass can tolerate a wide range of salinities, being found in areas with salinities ranging from six percent (Baltic Sea) to full strength seawater (Phillips and Menzie 1988). Eelgrass is found in the Arctic where temperatures are below freezing. However, at water temperatures above 71.6 degrees Fahrenheit, eelgrass plants either become annual or moribund.

Under most environmental conditions, eelgrass is perennial (Phillips and Menzie 1988). However, numerous populations displaying an annual habit have been identified in North America and Europe. Perennial eelgrass plants propagate primarily by vegetative growth, extending rhizomes (lateral roots) through the sediments to form new shoots, thus helping to bind the sediments. In contrast, annual plants produce stalks with seeds and die back at the end of the growing season. Evidence suggests that long distance dispersal of eelgrass is limited; most

seeds are deposited within a few meters of the parent (Williams and Davis 1996). The seeds germinate the following spring and reestablish the bed.

The annual life form may be environmentally induced as a response to environmental stressors (Phillips and Menzie 1988). Annual stands of eelgrass have been found in shallow waters, estuarine locations with low winter salinities, or in areas with very high or very low water or air temperatures. Depth of the population (intertidal vs. subtidal) also may affect the reproductive strategy of the plant. Along the Pacific coast of North America, eelgrass is considered variably responsive to environmental factors in its reproductive strategy in response to extremes of temperature and low salinities (Phillips and Menzie 1988).

Genetic diversity of eelgrass populations may be an important factor in determining the persistence of the population. Williams and Davis (1996) recently studied the genetic diversity of eelgrass beds in southern California. Genetic diversity within populations of eelgrass is generally lower in small populations, transplanted populations, and in populations that have recently colonized dredged sediments from nearby eelgrass beds. This may be due to the "founder effect," whereby the genetic pool is limited to those genotypes in the transplanted or colonizing population, or to natural selection for those genotypes that are favored by the newly colonized environment. Genetic diversity of transplanted beds also could be reduced if sexual reproduction failed or was reduced.

Fredette et al. (1988) conducted a study to evaluate the possibility of transplanting eelgrass within San Francisco Bay. The results of the study indicated that transplantation of eelgrass shoots should still be considered to be experimental. However, their results showed that transplanted eelgrass shoots survived for at least the one year monitoring period. They also suggested that the transplantation should be scheduled for the fall when flower production was decreasing but vegetative shoot production was beginning to increase, thereby allowing transplants to become established before subsequent flowering season.

3.7 WATER RESOURCES

The following describes the existing water resources on and surrounding the FISCO/Vision 2000 project site. A description of regulations relevant to water resources, including water quality, fill and dredging, and flooding, is provided in Appendix E. Primary water resources include runoff from the site, ground water underlying the project site, and the portion of San Francisco Bay that surrounds the site. The ROI for water resources includes the project site and Oakland Outer Harbor, Middle Harbor, and Inner Harbor, associated channels, and the east-central area of San Francisco Bay. This area was selected because its quantity and quality of water resources potentially could be significantly affected by elements of the project or, conversely, these water resources could pose a hazard, such as flooding, to subsequent uses.

3.7.1 Runoff and Drainage

The site topography is nearly flat. Shoreline areas are protected in most areas by channel training walls, sheet piling, quay walls, or other shoreline protection structures. The project site is constructed entirely on filled land, so there is no natural shoreline on the site. There are no natural channels or ponds within the project site boundaries.

Annual precipitation on the project site averages about 18 inches, most of which falls from October through April (US Navy 1990d). Drainage from the site is via a stormwater drainage system and direct overland flow to the surrounding receiving waters on the south and west.

Localized ponding of runoff has occurred in the southern portion of FISCO when storm drainage systems were overloaded or clogged. In the winter of 1995-1996, a large area of ponding occurred between 6th and 8th Streets from Middle Harbor Road south onto the Union Pacific Intermodal Railyard. This is apparently the result of plugging the 42-inch storm drain from the pump station at Building 710, which provides storm drainage for much of the Southern Pacific property as well as a portion of the east side of FISCO. Although the ponding is substantial, it has not resulted in the flooding of any buildings. The Port has corrected this problem. In addition, Southern Pacific has recently rerouted its storm drainage to bypass FISCO and to connect to the Oakland main rather than run through FISCO.

There has been ponding on other areas of FISCO due to storm drain blockages, including areas between M and N Streets near 6th Street and at 9th Street between Buildings 741 and 742. Both of these problems were repaired in early 1996. Smaller-scale ponding also occurs during heavy rains in some poorly drained low-lying areas (Serventi, J., May 23, 1996, personal communication).

3.7.2 Flood Hazards

FISCO has not been mapped for flood hazards by FEMA nor are any flood hazard areas indicated in the Navy's Master Plan (US Navy 1988c). The project

site is not near and does not contain any surface streams; therefore, it is not subject to that type of flood hazard. Adjacent Port areas mapped by FEMA are outside of the 100-year flood zone. No portions of the site are below the coastal base flood elevations identified for the Oakland Harbor (6.6 feet [msl]). The estimated stillwater elevation during the 100-year flood (high tide) in this area is estimated at 7.0 feet National Geodetic Vertical Datum (NGVD) (FEMA 1982). The training walls along the Oakland Inner Harbor range in elevation from about 8.4 feet to about 9 feet NGVD. The Union Pacific Intermodal Railyard fill embankment in this area ranges from about 13.5 to 17 feet NGVD. Elevations in waterfront areas along the Oakland Middle Harbor range from about 12.4 to 18.9 feet NGVD. No areas of the project site have been subject to coastal flooding from tidal or wave action (FEMA 1982).

Tsunamis, also known as seismic sea waves or tidal waves, can be generated by offshore or distant seismic activity or underwater landslides. Estimated tsunami runup heights for the probabilistic 100-year tsunami ranges from elevation 4.7 to 5.5 feet NGVD around the perimeter of the Port; the 500-year tsunami runup ranges from 7.5 to 9.5 feet NGVD (Garcia and Houston 1975). Another analysis of tsunami runup indicates that the western and southern margins of the site would be inundated by a 500-year event (Ritter and Dupree 1972).

Seiches are waves generated in an enclosed body of water caused by seismic shaking, climatic forces, or landslides into the water body. Although seiches are possible in San Francisco Bay, the largest ever measured in the bay was four inches in the 1906 earthquake (Alameda Reuse and Redevelopment Authority 1995). The site has not been adversely affected by any historic seiche.

Rising sea levels would add to tidal, tsunami, and wave heights at the site. The impact of sea level rise can be increased if the affected land mass is concurrently subsiding. At Alameda, across the Oakland Inner Harbor from the site, the estimated local relative sea level change is 0.0053 feet per year. However, this change has been increasing and EPA projects that there is a 50 percent chance that sea level in the San Francisco Bay Area will rise 6.24 inches by 2050 and another approximately 6 inches by 2075 (US EPA 1995a).

When EPA's projected rise in sea level at Oakland is superimposed on the 100-year high tide elevation at this site, it rises from the current 7.0 feet to about 7.7 feet NGVD by 2050. These estimates do not include a compound increase caused by high waves occurring simultaneously, or the very low probability event of a tsunami occurring simultaneously with high tides.

3.7.3 Runoff Water Quality

Surface runoff from various representative portions of Port property have been sampled as part of the Port of Oakland's National Pollutant Discharge Elimination System (NPDES) Permit Stormwater Management Program. Stormwater sampling sites were selected to represent the various major land uses

at the Port—containerized freight yards, break bulk storage/railroad maintenance yards, vehicle/generator maintenance areas, truck maintenance facilities, and commercial real estate areas. Since 1992, the Port has sampled stormwater generated from representative tenants' operations at the port area. No sampling has been conducted by the Port in Port-leased FISCO property. Ranges of contaminants in stormwater sampled during the winters of 1992 through 1995 for different existing land use types at the Port are shown in Table 3-10 (Uribe and Associates 1995 and 1996).

The Port's data for maritime and rail uses is consistent with the range of data on these uses collected by the EPA (US EPA 1995a). The Port has implemented a number of best management practices (BMPs) to limit contaminants in stormwater runoff (see Appendix I). These BMPs include limiting certain vehicle maintenance to covered, internally drained areas, carefully maintaining oil and grease traps and oil/waters separators, and eliminating steam cleaning of vehicles in areas draining to storm drains. In addition, the Port is continuing to rigorously monitor and inspect tenants' facilities to assist in the development and implementation of BMPs for each specific use and to assure that improvements identified by the Port to limit stormwater contamination have been implemented (Herman, D., September 18, 1996, personal communication).

The Navy conducts stormwater monitoring on FISCO in compliance with the State Regional Water Quality Control Board's General Permit for Discharge of Stormwater from Industrial Activities. In its 1995-1996 annual report, the Navy noted a substantial decrease of contaminants from its activities at FISCO because base downsizing, closures, and transfer of portions of the site to the Port of Oakland resulted in a major reduction of the number and intensity of industrial operations occurring on-site (US Navy 1996e).

The Navy sampled for total petroleum hydrocarbons (TPH), total organic carbon (TOC), a variety of metals of concern identified in the California Assessment Manual (CAM), benzene, toluene, ethylbenzene, and xylenes (BTEX), and polychlorinated biphenyl (PCB). Oil and grease sampling was not performed. Ranges of contaminants in stormwater sampled between December 1995 and January 1996 are shown in Table 3-11 (US Navy 1996e). The 1995-1996 sampling did not detect any TPH, BTEX, or PCBs. Detectable levels of titanium (170-180 micrograms per litre [μg/L]), zinc (40-5,400 μg/L), and lead (200 μg/L) were detected in stormwater samples. Total organic carbon occasionally was detected in levels ranging from 5.1 to 50 milligrams per litre (mg/L). These contamination levels are similar to the range found in runoff from nearby Port property.

Problems with concentrations of diesel fuel have been noted in the lift station at Building 710. This has been traced to spills or leaks at the adjacent Southern Pacific West Oakland Railyard. The RWQCB has required FISCO to monitor the lift station and to pump out any accumulations of diesel fuel (Wong, P., May 22, 1996, personal communication).

Table 3-10
Stormwater Sampled at the Port of Oakland

		Land Use Type				
Constituent	Detection Limit/Units	Containerized Freight Yards	Break-bulk Storage Railroad Maintenance	Vehicle/Generator Maintenance	Truck Maintenance	Commercial Real Estate
pH	Standard Units	7.1-7.4	6.2-8.2	6.0-7.5	7.1-7.6	7.6-8.6
TSS	10 mg/L	20-2,200	30-2,200	30-1,200	690-27,100	10-270
Specific conductance	1 umohs/cm	25-560	29-140	46-330	290-1,200	41-305
Ethylbenzene	0.3 μg/L			ND-0.9		
Toluene	0.3 μg/L			ND-0.4	ND-0.3	
o-xylene	0.4 μg/L			ND-0.5		
p,m - xylene	0.4 μg/L			ND-1.4		
TPH (motor oil)				3,300-56,000	5,200-27,000	
TPH (diesel)				<50-37,000	<100-18,000	
TPH	1 mg/L	<1-38	<1-55	3-67	5.8-26.0	<1.0-5.85
Ethylene Glycol	100,000 μg/L			<50,000-<100,000	<50,000-<100,000	
Surfactants	20 μg/L			31-690	ND-580	<20-60
BOD	6,000 μg/L					<6,000-55,000
Cadmium	5 μg/L	<5-17	<5-28	<5-39	<5-63	<1-14
Chromium (total)	10 μg/L	<10-260	<10-270	<10-120	<20-380	<5-107
Copper	10 μg/L	10-350	<10-750	20-370	100-2,000	<10-90
Lead	50 μg/L	<50-1,520	<50-1,900	<50-680	90-1,500	<50-80
Nickel	20 μg/L	<20-95	<20-320	<20-60	<40-720	<20
Zinc	10 μg/L	600-10,100	<80-2,900	480-4,200	780-12,400	30-370

Source: Uribe and Associates 1996

Notes:
ND = Not detected
TSS = Total suspended solids
TPH = Total petroleum hydrocarbons
BOD = Biological oxygen demand

μg/L = micrograms per litre
mg/L = milligrams per litre

Table 3-11
Summary of Analytical Results from Stormwater Sampling at FISCO

Sample ID	Date	Location (Building No.)	TPH mg/L	BTEX mg/L	PCB mg/L	CAM µg/L	TOC mg/L
SW-833	12/14/95	833	ND (1.0)	ND (1.0)	-	Ti 170.0	5.1
SW-612	12/14/95	612	ND (1.0)	ND (1.0)	ND (0.003)	Ti 180.0	50.0
SW-533	12/14/95	533	ND (1.0)	ND (1.0)	-	Zn 5,400.0	-
C4	12/28/95	833	ND (0.5)	ND (0.5)	ND (0.003)	Zn 260.0	ND (3.0)
N14	12/28/95	833	ND (0.5)	ND (0.5)	ND (0.003)	Zn 40.0	ND (3.0)
B612	12/28/95	612	ND (0.5)	ND (0.5)	ND (0.003)	Zn 140.0	ND (3.0)
SW-3	01/03/96	833	-	-	ND (0.004)	Pb 200.0	27.0
SW-4	01/03/96	612	-	-	ND (0.003)	Zn 100.0	ND (3.0)

Notes:
ND = Parameter not detected at level in parentheses
TPH = Total petroleum hydrocarbons
BTEX = Benzene, toluene, ethylbenzene, and xylenes
PCB = Polychlorinated biphenyl
CAM = California Assessment Manual
TOC = Total organic carbon
Ti = Titanium
Zn = Zinc
Pb = Lead
\- = Analysis not performed

CAM analyses reported for subjective metal

Source: US Navy 1996e

A review of available stormwater runoff quality data (pH, total suspended solids, and oil and grease) for the Union Pacific and Southern Pacific Railyards indicated total suspended solids and oil and grease levels within the range shown in Table 3-10 for "containerized freight yards" (Union Pacific Railroad 1996; Southern Pacific Lines 1996). Both Union Pacific and Southern Pacific indicated that BMPs incorporated in their SWPPPs were effective in reducing contaminants in stormwater runoff; however occasional oil sheens were noted, and one Union

Pacific pH reading was very acidic (3.8). BMPs used at the railroad facilities include use of oil water separators, stormwater drains constructed with concrete sumps to remove sediments and other suspended particulates, overflow collection pans that drain fuel to separators for recovery installed on all locomotive fueling tracks, automatic fuel shut-off valves on fuel pumps to prevent overfilling, a spill prevention, control, and countermeasures plan (SPCCP) for all aboveground storage tanks, and materials handling procedures for solid and liquid materials in packages, drums, or bulk containers.

Existing land uses at the project site include approximately 249 acres of railroad uses (project site Areas E, F, G, and H), approximately 440 acres of warehouse/light industrial uses (project site Areas A [upland], B, C, and D), and about 22 acres of maritime/port-related uses (FISCO wharves, piers, and dock areas). Warehousing/light industrial uses typically generate lower contaminant levels when compared with railroad and maritime uses. However, if the light industrial uses include outdoor vehicle maintenance uses, as is the case at the project site, those uses also can generate significant levels of contaminants. Therefore, the existing data are inadequate to develop a meaningful correlation between on-site stormwater runoff contamination and the site's three major land use types.

The contribution of each land use area to stormwater contamination is more closely tied to the implementation of BMPs for each use. For example, if all vehicle maintenance is performed indoors or in contained areas with runoff collected, tested, and treated prior to discharge to sanitary or storm sewers (as appropriate), the vehicle maintenance contribution to stormwater contamination would be minimal. The relatively high contributions of vehicle maintenance and railroad maintenance uses on the site to stormwater contamination are a result of these activities being conducted partly or completely outdoors with inadequate containment or treatment of runoff (Herman, D., September 18, 1996, personal communication). The Port is taking steps to improve this situation; however, facilities do not exist at the Port for moving all of these uses indoors or to contained areas.

3.7.4 Harbor Water Quality

Limited historic or recent water quality data specific to Oakland Harbor water quality are available. General trends of various water quality parameters can be inferred for the Oakland vicinity from data collected in open water areas. However, water quality characteristics in the sheltered channel and berthfront environments may deviate from open water areas due to the presence of localized contaminant sources. Because the Oakland Harbor is located in an urban and industrial area, water quality conditions likely fluctuate with changing storm sewer releases and local industrial discharges. These effects are compounded by seasonal and diurnal temperature and freshwater inflow fluctuations in the open bay. The Oakland Inner Harbor likely has decreased salinity, increased temperatures, and slightly depressed dissolved oxygen levels relative to the open

bay due to lack of circulation. The Oakland Outer Harbor likely experiences water quality conditions consistent with the central bay for high salinity, suspended solids, nutrient levels, pH and dissolved oxygen levels, and high levels of selenium (Port of Oakland and US Army Corps of Engineers 1994).

3.7.5 Ground Water

Ground water occurs at shallow depths throughout the project site. In general, all subsurface materials (including fill, young Bay Muds, Merritt/Posey Formation, and the deeper Alameda Formation) that underlie the site are saturated at depths greater than ten feet below the surface. Of these materials, only the Merritt/Posey and Alameda Formation function as aquifers. The Bay Muds, although water saturated, are relatively impermeable units, and do not function as aquifers. The overlying fills also may be water saturated and transmit ground water, but similarly are not used as aquifers.

Water level measurements in the project site indicate that ground water levels in the uppermost aquifer (the Merritt/Posey Aquifer) fluctuate seasonally due to recharge from precipitation. No tidal influences were observed in this aquifer (US Navy 1990d). However, the Port of Oakland's data indicate that there is limited tidal influence in the aquifer. There has been saltwater intrusion in the Merritt/Posey Aquifer, much of which is exposed under the Oakland Harbor.

FISCO is identified in the Basin Plan for the San Francisco Bay Region as being within the East Bay Plain "significant ground water basin" (RWQCB 1995). This basin's ground water is used for municipal, industrial process and service, and agricultural uses. The primary aquifer in this plain is the Alameda Formation (Alameda Aquifer). Deeper confined aquifers within older underlying alluvial deposits (within the Alameda Formation) typically have been used for water supply wells. Amendments to the Basin Plan identify municipal and domestic water supply as beneficial uses of ground water resources within the aquifers underlying the East Bay Plain.

The Merritt Sand (i.e., the formation of the Merritt/Posey Aquifer that underlies the site) contains some ground water but is not considered a primary water supply aquifer because of limited distribution and thickness. Ground water within the Merritt Sand may be considered for temporary use in the event of emergency disruption of EBMUD water supplies, such as during a major earthquake; however, past wells in the Merritt Sand have produced aggregate yields of less than 330 gallons per minute, with a highest single well yield of 110 gallons per minute, some of which may be from the underlying Alameda Aquifer (Geo/Resource Consultants, Inc. 1987). In addition, withdrawal of substantial quantities of fresh water from this aquifer could result in saltwater intrusion.

Concern previously has been raised regarding the effects of dredging on saltwater intrusion into the Alameda Aquifer when the overlying younger Bay Mud deposits are removed (Harding Lawson Associates 1988). Studies for deeper

berthfront dredging at NAS Alameda and FISCO noted that the dredging project would not significantly increase saltwater intrusion into this aquifer but that ground water withdrawals should be managed to prevent intrusion of saltwater into the aquifer (US Navy 1990d).

3.7.6 Dredging

In mid-1996, the Port began deepening the Oakland Inner and Outer Harbors from 38 feet to 42 feet below MLLW. By the time the project is complete in 1997, about 6.1 million cubic yards of dredge material will have been removed and disposed of (Port of Oakland 1995c). The FISCO turning basin and berths are dredged to 41 and 38 feet below MLLW (plus two feet of overdredging), respectively (Seelinger, S., March 1996, personal communication). Maintenance dredging of the Oakland Inner and Outer Harbor channels has averaged about 370,000 cubic yards annually from 1975 through 1991. Of this, about 150,000 cubic yards per year are for the Inner Harbor channel and the remainder is in the Outer Harbor channel. Total Inner and Outer channel dredging will increase to about 510,000 cubic yards annually after completion of the 42-foot deepening project (Port of Oakland and US Army Corps of Engineers June 1994). Dredging in the Oakland Middle Harbor associated with FISCO has averaged about 33,000 cubic yards per year (US EPA, Region IX et al. 1996a).

3.8 GEOLOGY AND SOILS

This section describes the geologic setting of the FISCO/Vision 2000 project site. Seismicity, liquefaction, and differential settlement are discussed in detail because they represent potential geologic hazards to reuse and development of the project site. A description of state and local regulations related to geology and soils, including the Port's wharf design criteria, is presented in Appendix E.

The ROI for soils and geologic resources includes lands within the boundaries of the project site, adjacent contiguous land and waterways, the underlying geologic formations, and regional faults. Regional geologic features are discussed to provide a context for the discussion of geology at the project site because some geologic conditions and processes (such as movement along faults) may occur outside the FISCO/Vision 2000 project site boundaries but may impact the site.

3.8.1 Regional and Site Geology

3.8.1.1 Physiography

The project site is located on nearly level terrain along the margin of San Francisco Bay, in the Coast Ranges physiographic province. The dominant geological processes that have shaped the landscape in the vicinity of the site are uplift and erosion of the East Bay Hills, subsidence of the San Francisco Bay basin, and faulting associated with the Hayward Fault and other active faults of the San Andreas Fault system.

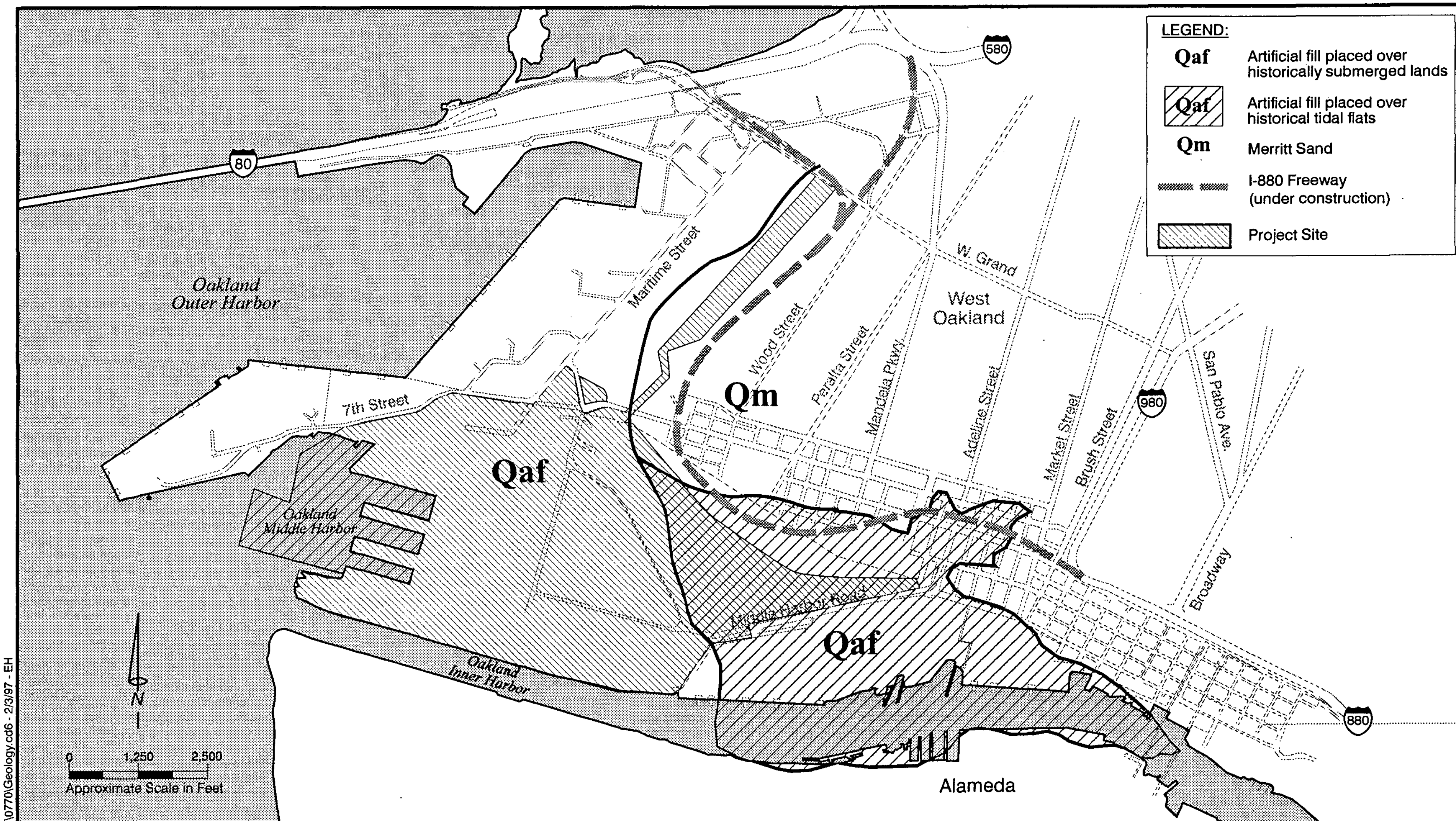
3.8.1.2 Regional Geology

Figure 3-13 is a simplified geologic map of the region surrounding the project site (modified from Radbruch 1957). Figure 3-14 shows a geologic cross section from east to west in the region of the site. The geologic units found beneath the site are described below (Carlisle and Rollins 1994). The San Francisco Bay region is underlain by bedrock of the Franciscan Formation. The rocks underlying the bay were high-standing until about one million years ago, when the bay basin began subsiding. The Pacific Ocean first entered the basin about 400,000 to 500,000 years ago, allowing sediments to accumulate.

The sediments deposited on the Franciscan bedrock belong to the Alameda Formation, which is about 400 feet thick beneath the project site and over 1,000 feet thick beneath the Oakland Airport (Rogers and Figuers 1991).

The Yerba Buena Mud (also known as Older Bay Mud) extends about 50 to 75 feet beneath the project site. The top of the Yerba Buena Mud slopes to the west, from a depth of 70 feet beneath the Southern Pacific West Oakland Railyard to about 100 feet beneath the Oakland Middle Harbor.

Overlying the Yerba Buena Mud is a sequence of coarser deposits known as the San Antonio Formation. The San Antonio Formation includes alluvial fan



R:\0770\Geology.cd6 - 2/3/97 - EH

The project site is underlain by artificial fill placed over bay mud or Merritt Sand.

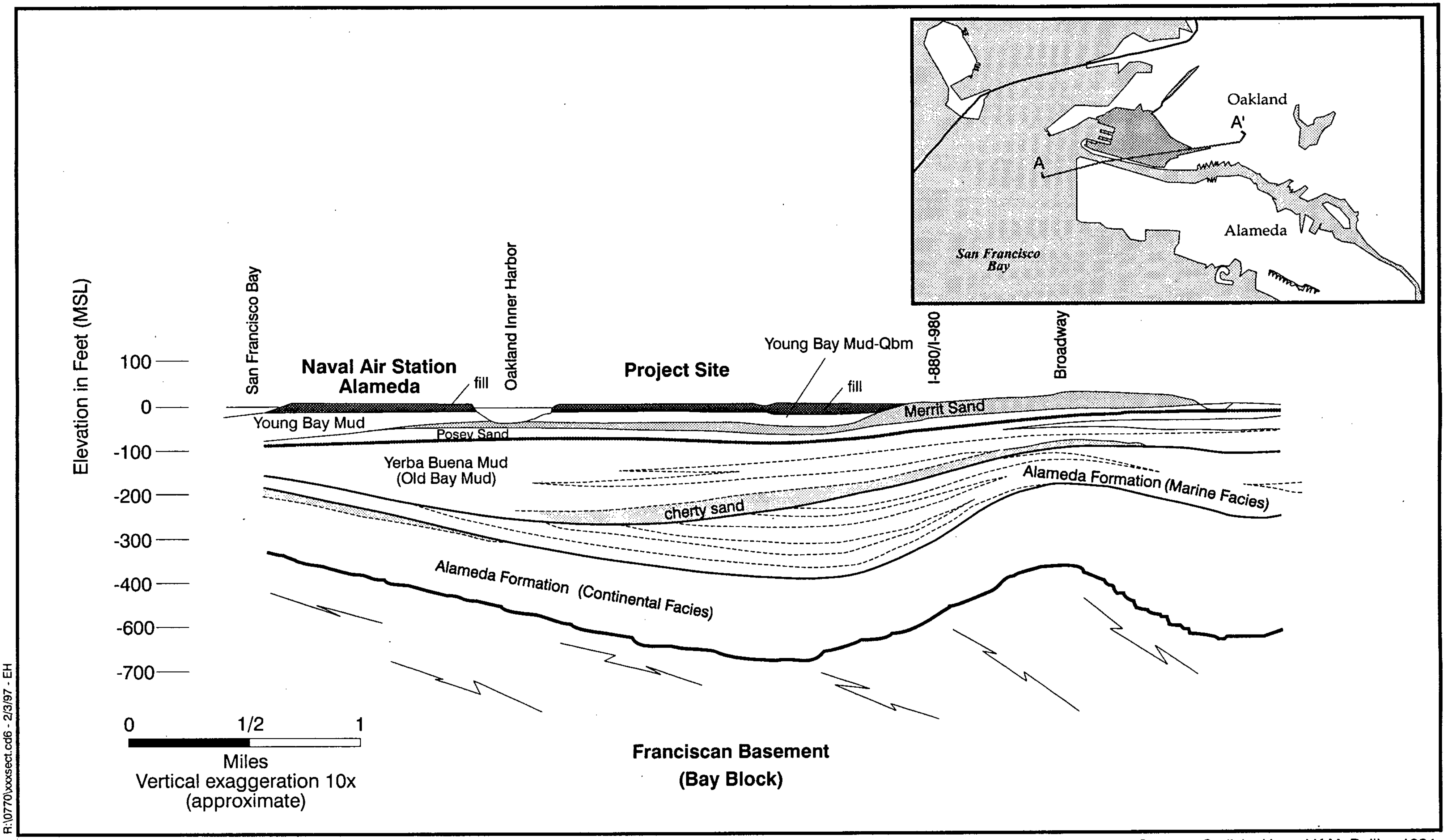
Source: Modified from Radbruck 1957

Simplified Geologic Map

Fleet & Industrial Supply Center Oakland
and Port of Oakland

Figure 3-13

Port of Oakland



This figure shows the sequence of sedimentary layers underlying the project site.

Geologic Cross Section

Source: Carlisle, H. and K.M. Rollins 1994

Fleet & Industrial Supply Center Oakland
and Port of Oakland

Port of Oakland

Figure 3-14

deposits, sandy channel fill, and shoreline dunes. The channel fill is a fine, silty sand called the Posey Sand. In certain shoreline areas, San Antonio deposits were reworked by the wind, forming dunes. The dune deposits, which are called the Merritt Sand, are composed of dense fine-grained sands, similar in composition to the Posey Formation.

The Merritt Sand and the Posey Formation form the uppermost aquifer beneath the East Bay shoreline. West of the historic margin of the bay, the Merritt Sand/Posey Aquifer is overlain by Younger Bay Mud, which acts as a confining layer. In some areas, such as beneath the Oakland Inner and Outer Harbors, the Bay Mud has been removed by dredging, exposing the underlying Merritt Sand/Posey Aquifer. In the vicinity of the project site, the aquifer is about 25 to 50 feet thick.

A blanket of Younger Bay Mud up to 130 feet thick in some areas and 10 to more than 30 feet thick at FISCO, is deposited over the former dunes (Rogers and Figuers 1991; Goldman 1969). The Bay Mud is a soft, uniform, gray, silty clay. It can contain as much as 60 percent water and has low strength and high compressibility, which causes it to fail under loading. It is soft and plastic when wet and tends to shrink, harden, and become brittle when dry. It is a poor formation for the support of friction piles (Goldman 1969).

The entire project site lies bayward of the historic margin of the bay and was constructed on fill. The site was filled over a period of more than 50 years. The largest portion, FISCO, was filled during the 1930s and 1940s. The filling was accomplished by pumping hydraulically dredged sandy fill from the surrounding bay into diked basins constructed in what was then an area of mudflats and shallow water (EFA West 1996, Rogers and Figuers 1991).

Various geotechnical studies performed at FISCO indicate that the site is underlain by 6 to 14 feet of poorly to moderately compacted granular fill (Woodward-Clyde Consultants 1978b and Dames and Moore 1970). The fill includes clay from the soft Bay Mud that originally overlaid the Merritt Sand deposits. The fill is described as heterogeneous and includes sands, silts, clays, gravels, concrete rubble, and boulders (Woodward-Clyde Consultants 1978a).

Soft, dark gray silty clay (i.e., Bay Mud) is found at the base of the fill. The Bay Mud ranges in thickness from less than 10 feet to more than 30 feet and contains lenses of silty sand. The variable thickness of the Bay Mud is probably due both to the uneven surface of the Merritt Sand on which it was deposited and to tidal channels that existed in the top of the Bay Mud before the fill was placed, although some variation in thickness may have been induced by differential compaction due to post-development loading. The water table typically occurs within the fill, at depths of about 3.5 to 9 feet (Harding Lawson Associates 1984; Woodward-Clyde Consultants 1978a and 1978b).

The dikes may have been constructed on the Merritt Sand deposits that underlie the Bay Mud. The fill was placed over the existing blanket of Bay Mud. Over time, the weight of the fill forced the water out of the pore space in both the fill and the Bay Mud, consolidating the Bay Mud and causing the land surface to settle.

The ultimate amount of consolidation of Bay Mud beneath fill of a given density depends on the thickness of the fill and the thickness of the Bay Mud. Theoretically, Bay Mud 10 to 30 feet thick and overlain by 10 to 20 feet of sand fill will settle on the order of 1.5 to 5 feet (Lee and Praszker 1969). It has been estimated that a 10 foot thick Bay Mud layer will achieve maximum consolidation within two years, while about 40 years is required for a 30 foot layer to fully consolidate (Lee and Praszker 1969). Since the thickness of Bay Mud and fill underlying the project site are within these ranges, most of the consolidation of the Bay Mud and fill for the existing loading conditions has probably already occurred.

3.8.2 Soils

The project site consists of nonnative soils developed on fill materials. These soils are classified predominantly as Urban Land (Kashiwagi and Hokhot 1991). Table 3-12 lists some of the main properties of each soil.

Table 3-12
Properties of Soils at the Project Site

Soil Name	Depth	Shrink/ Swell Potential	Limitations for Dwelling Site Development	Limitations for Small Commercial Buildings	Limitations for Local Roads and Streets
Urban Land (heterogeneous fill)	variable	variable	not classified	not classified	not classified
Urban land - Baywood complex	60+ inches	low	slight	moderate (slope)	slight

Source: Kashiwagi and Hokholt 1991

Urban Land refers to fill material that is covered by buildings or roads. The fill can have a wide range of characteristics, depending on its origin. The main limitations of these soils include subsidence, corrosivity, and highly variable soil properties, such as permeability and available water capacity. Areas of fill are not suitable for slab foundations without mechanical compaction or pile-driven supports. Even then, subsidence of the underlying Bay Mud is likely to occur under the weight of the structure. The shallow water table is another limiting factor for development. Suitable topsoil must be imported to support landscaping (US Navy 1986c).

East of the Southern Pacific Railyard, the site contains Baywood loamy sand soil, which developed on Merritt Sand deposits. This is a very deep permeable soil. It has few limitations for development in level areas, such as those at the site.

3.8.3 Regional Seismicity

The project site lies within the San Andreas Fault system. In the San Francisco Bay Area, the San Andreas Fault system stretches across a zone approximately 44 miles wide (Wallace 1990). The principal active faults in the San Andreas Fault system include the San Andreas, San Gregorio, Hayward, Rogers Creek, West Napa, Calaveras, Concord, and Green Valley Faults (Jenning 1994; Bortugno 1982).

Damage to structures depends not only on the intensity and duration of an earthquake but also on how the structure is built and the direction of travel of seismic waves relative to the orientation of the supporting elements of the structure. The proximity of the project site to major earthquake faults means that seismic energy would not be lessened to a significant degree should an earthquake occur on a segment of one of the active faults near the project site.

The probability of one or more large earthquakes (Richter magnitude 7.0 or greater) occurring on the San Andreas, Hayward, or Rogers Creek Faults by 2020 has been estimated to be about 67 percent (Working Group on California Earthquake Probabilities 1990). Since the probabilities of large earthquakes on other active faults was not included in this estimate, the 67 percent probability is considered to be a minimum probability for damaging earthquakes in the Bay Area. The probability of a magnitude 7.0 or greater earthquake occurring on the northern segment of the Hayward Fault by 2020 is estimated to be 28 percent (Working Group on California Earthquake Probabilities 1990).

3.8.4 Local Seismicity

No active faults have been identified on the project site. An active fault is defined by the California Division of Mines and Geology (Hart 1992) as a fault that has "had surface displacement within Holocene time (about the last 11,000 years)." In California, special restrictions apply to construction within "fault-rupture hazard zones," as defined by the Division of Mines and Geology under the Alquist-Priolo Special Studies Zones Act of 1972, to prevent developments and structures for human occupancy across the trace of active faults. The nearest active trace of the Hayward Fault is located approximately five miles east of the project (Lienkaemper 1992). The San Andreas Fault lies approximately 15 miles to the west, and the Calaveras Fault is about 15 miles to the east (Wagner et al. 1990).

The last major earthquake along the Hayward Fault occurred in 1868 (128 years ago). The magnitude of the 1868 earthquake has been estimated at 6.8 (Tuttle and Sykes 1992). It is estimated that the recurrence interval for an earthquake of that size is about 130 ± 60 years (Lienkaemper and Borchardt 1992).

3.8.5 Geologic Hazards

3.8.5.1 Ground Shaking

The Association of Bay Area Governments (ABAG) predicts that the amplification of seismic waves in the engineered fill materials at the project site would be at the extreme high end of the response spectrum of geological materials found in the Bay Area. ABAG predicts that the most damaging earthquake at the project site would be one originating on the northern portion of the Hayward Fault and that damage would be "heavy," (Mercali intensity IX) due to ground shaking at the project site, in response to an earthquake of magnitude 7.1 on the northern portion of the Hayward Fault (Association of Bay Area Governments 1995; Perkins and Boatwright 1995).

During the Loma Prieta earthquake of October 17, 1989, (with an epicenter 57 miles south of the project site), the peak ground acceleration recorded at strong motion-recording stations at NAS Alameda and at the Oakland Outer Harbor (within the Marine Operations Building in Berth 24) were very similar: 0.27 and 0.25 times the acceleration of gravity (g), respectively (Borcherdt and Glassmoyer 1994). The NAS Alameda site is situated on fill overlaying Bay Mud. The Operations Building at Berth 24 is built upon fill soils (Prall, J., October 23, 1996, personal communication).

The recorded peak ground accelerations on these sites were more than three times greater than peak accelerations at nearby instrumented bedrock locations, such as Yerba Buena Island (Carlisle and Rollins 1994). Using computer modeling techniques, Carlisle and Rollins predicted that magnitude 8.25 and 7.25 earthquakes on the Hayward Fault would produce peak ground accelerations of 0.65 g and 0.41 g, respectively at NAS Alameda. Although this analysis has not been done for the project site, the similarities in the geology of both sites suggests that results would be comparable.

3.8.5.2 Liquefaction Potential

A major cause of damage to structures during earthquakes is liquefaction. Liquefaction results from ground shaking and is defined as "the transformation of a loose, water-saturated granular material, such as sand, from a solid state to a liquefied state as a consequence of increased pore-water pressure" (Helley and Lajoie 1979; Youd et al. 1975). During earthquakes the pore-water pressure is raised repeatedly so that sand grains are temporarily forced apart. The most likely materials to liquefy are shallow, loose, water-saturated, well-sorted silts and sands with little or no clay-sized material present.

In areas underlain by Bay Mud, including the project site, liquefaction potential is generally moderate but locally high where clean granular layers are present in the Bay Mud (Youd et al. 1975). Since the engineered fill covering most of the project site contains a wide range of materials, including hydraulically placed Merritt Sand, the liquefaction potential at the project site is likely to be moderate to high

in many locations (Peter Kaldveer and Associates, Inc., 1986). Evidence of liquefaction was observed at FISCO following the 1989 Loma Prieta earthquake (Guldner, E., personal communication, December 13, 1996).

3.8.5.3 Settlement

Settlement is the gradual downward movement of an engineered structure due to compaction of the unconsolidated material below the foundation. A major cause of settlement is low shear strength of the unconsolidated material (Helley and Lajoie 1979). The rate of settlement is usually most rapid immediately after loading and gradually decreases with time. Bay Mud is frequently associated with settlement problems in the San Francisco Bay region because of its extremely low shear strength (Goldman 1969).

Differential settlement results from spatial variations in uniformity of thickness of the Bay Mud or the fill overlying it. Areas of historical tidal flats are likely to be susceptible to differential settlement because the presence of tidal channels resulted in variations in the thickness of the fill.

In a 1988 report, the Navy identified six areas, where settlement could be observed (US Navy 1988c). At least six inches and up to two feet of settlement was observed in the area surrounding Buildings 721, 722, 731, and 732. It was noted that in some areas the railroad spurs appeared to have been built up to make the docks usable.

Two to four inches of differential settlement has been reported around Buildings 422 and 522 (US Navy 1988c). Up to six inches of settlement were reported in the bulk storage area east of Building 522. Several feet of settlement have occurred along 2nd Street between Buildings 123 and 113. Minor settlement has occurred around Building 740.

Most of the existing FISCO buildings are constructed on pile foundations, which reportedly have been successful in preventing settlement. Pile capacity is primarily from end-bearing capacity on the Merritt Sand, although frictional support is also present. Settlement of the roadways and the ground surface surrounding buildings, relative to the foundations of the buildings themselves, has resulted in increased loading dock heights and poor drainage conditions in some areas.

It has been estimated that about 2.5 inches of settlement will occur for each additional foot of new fill placed on the site, based on a fill density of 125 pounds per cubic foot. The maximum differential settlement for new loading was estimated to be less than 50 percent of the total settlement (Harding Lawson Associates 1988).

Piers 4 and 5 reportedly are supported by 18-inch by 18-inch reinforced concrete piles driven to depths of about 40 to 60 feet below MLLW in 1941 and 1942

(VZM 1984). The North and East Marginal Wharves and Berth A are supported by 16-inch by 16-inch reinforced concrete piles, driven to depths of about 16 to 40 feet. Riprap was placed beneath the wharves to reduce erosion of the fill banks.

3.8.5.4 Lateral Spreading

Lateral spreading, or ground lurching, is the horizontal component of soil movement in the direction of a free slope face that results from liquefaction of a supporting soil layer due to an earthquake. Fissures in a nearly horizontal or gently sloping ground surface are a common feature of lateral spreading.

With the exception of local subsidence in the vicinity of the North Marginal Wharf due to erosion resulting from failure of sheet pilings or a concrete curtain wall (US Navy 1987), lateral spreading has not been reported in any of the geological studies of the project site reviewed for this report. The lack of mention of lateral spreading suggests that the perimeter dikes have been effective in retaining the fill material behind them.

3.8.5.5 Slope (Dike) Stability

The only significant slopes at the project site are subtidal slopes of perimeter dikes adjacent to dredged channels. No studies have been performed at FISCO to evaluate the construction and stability of the perimeter dikes or seawalls. A study of the jetty supporting the Union Pacific property adjacent to the Oakland Inner Harbor was performed in 1993 (Shannon and Wilson 1993). The study concluded that "the existing slope geometry may result in large-scale slope failure and/or rolling of large riprap into the navigation channel during a large earthquake." The study recommended flattening the slope and stabilizing the riprap.

3.8.6 Mineral Resources

No economic mineral resources have been identified at the project site (Bailey and Harden 1975).

3.9 TRAFFIC AND CIRCULATION

This section describes existing traffic and circulation conditions that may be affected by future projects at or near the project site. A discussion of traffic and circulation-related regulatory considerations is presented in Appendix E. This area is located in a highly urbanized area served by an extensive network of freeway and arterial roadways, bus and rapid transit lines, ferry service, railroads, and marine shipping lines.

The ROI for traffic analysis includes regional freeways in the East Bay from the Alameda/Contra Costa County line to the south Oakland city limits. This ROI for regional freeways was selected in consultation with the Alameda County Congestion Management Agency (CMA) and the Metropolitan Transportation Commission and encompasses areas within the regional transportation network that could be affected by project-generated traffic. The ROI also includes local access routes within a two-mile radius of the project site and roadway/railroad at-grade crossings from Cutting Boulevard in Richmond to 37th Avenue, south of Fruitvale Avenue, in Oakland. The ROI for local access routes and roadway/railroad crossings was selected because it represents the limits of roads and rail crossings likely to be affected by the project.

Traffic volumes used for conditions prior to FISCO closure are based on 1996 traffic conditions, with adjustments to account for the 1990 activity levels reflecting full Navy occupation of the site and providing a basis for analysis of 2010 without implementing the Vision 2000 Program. Adjustments also were made to account for the effects of construction of the new I-880 Cypress Freeway.

3.9.1 Level of Service Methodology

Level of service (LOS) was analyzed at study area intersections for the AM and PM peak hours, using the methodologies described in the 1994 Highway Capacity Manual (Transportation Research Board 1994). The LOS for signalized and unsignalized intersections is defined in terms of delay, which is a measure of driver discomfort, frustration, and lost travel time.

The LOS of an intersection is a measure of its ability to satisfy travel demand and is defined by the average number of seconds of delay per vehicle. LOS ranges from A, representing no undue delays, to F, representing very high levels of congestion and delay. LOS A through LOS C indicate that the intersection is operating efficiently. Delay begins to become more noticeable at LOS D. LOS E represents substantial congestion, and LOS F is characterized by stop-and-go traffic with long delays. The City of Oakland has established a level of service goal of LOS D or better. See Table 3-13 for the LOS criteria expressed in terms of average stopped delay.

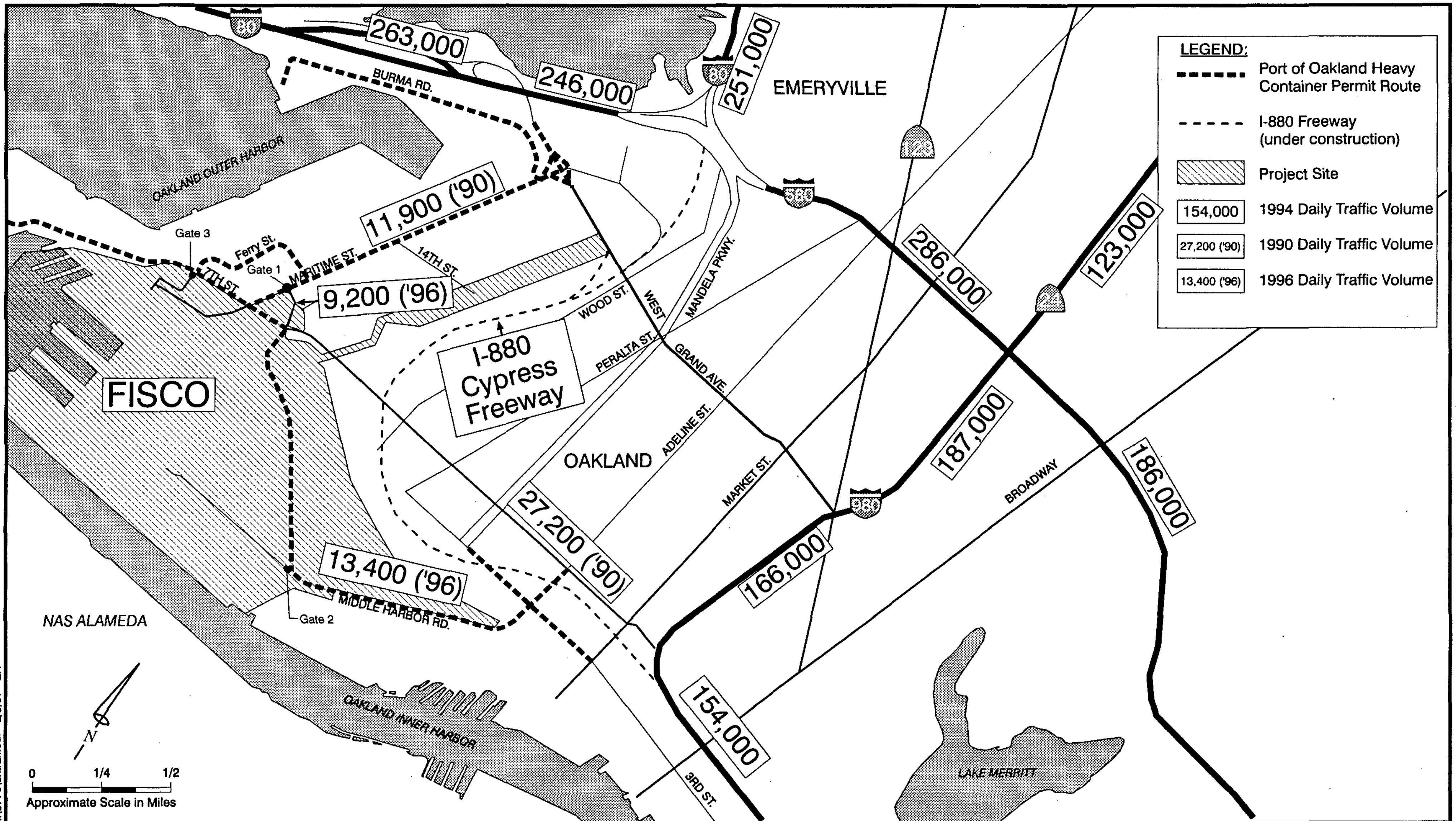
Table 3-13
Traffic Level of Service Definitions
for Signalized and Unsignalized Intersections

LOS	Description	Delay Per Vehicle: Signalized Intersections	Delay Per Vehicle: Unsignalized Intersections
A	Operations with very low delay. This level of service occurs at signalized intersections when progression is extremely favorable and most vehicles arrive during the green phase. Most vehicles do not stop at all. Short cycle lengths may also contribute to low delay.	Up to 5 seconds (sec.)	Up to 5 sec.
B	At signalized intersections, this level generally occurs with good progression, short cycle lengths, or both. More vehicles stop than with LOS A, causing higher levels of average delay.	>5 to 15 sec.	>5 to 10 sec.
C	At signalized intersections, higher delays may result from fair progression, longer cycle lengths, or both. Individual cycle failures may begin to appear at this level. The number of vehicles stopping is considerable at this level, though many still pass through the intersection without stopping.	>15 to 25 sec.	>10 to 20 sec.
D	At level D, the influence of congestion becomes more noticeable. Longer delays may result from some combination of unfavorable progression, long cycle lengths, or high volume to capacity ratios. Many vehicles stop, and the proportion of vehicles not stopping declines. Individual cycle failures are noticeable.	>25 to 40 sec.	>20 to 30 sec.
E	This level is considered by many agencies to be the limit of acceptable delay. These high delay values generally indicate poor progression, long cycle lengths, and high volume to capacity (v/c) ratios. Individual cycle failures are frequent.	>40 to 60 sec.	>30 to 45 sec.
F	This level, considered to be unacceptable to most drivers, often occurs with oversaturation; that is, when arrival flow rates exceed the capacity of the intersection. It may also occur at high v/c ratios below 1.0, with many individual cycle failures. Poor progression and long cycle lengths may also be major contributing causes to such delay levels.	>60 sec.	>45 sec.

Source: Transportation Research Board 1994.

3.9.2 Regional and Local Access Routes

Regional and local access routes are shown on Figure 3-15. Regional access routes consist of freeways; local access routes consist of arterial, collector, and local roadways.



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The ROI for traffic and circulation in this EIS/EIR includes regional freeways and local access routes consisting of arterial, collector, and local roadways within a two-mile radius of the project site. Also shown are Port of Oakland heavy container permit routes that allow trucks with gross vehicle weights of up to 95,000 pounds.

Source: Dowling Associates & Wiltec 1996; US Navy 1995; Caltrans 1994

Regional Highway and Street System with Existing Daily Traffic Volumes (1994 unless noted)

Fleet & Industrial Supply Center Oakland
and Port of Oakland

Port of Oakland

Figure 3-15

3.9.2.1 Regional Vehicular Access Routes

The project site is located near the hub of the Bay Area freeway system. A description of the regional system is provided below.

State Route 24 is an eight-lane freeway that connects the East Bay with central and east Contra Costa County. State Route 24 extends from I-980 to I-680 through the Caldecott Tunnel.

I-80 is an eight- to ten-lane freeway serving San Francisco, the West Bay, and East Bay destinations in west Contra Costa County, Sacramento, and points north and east. I-80 is connected to the project site by freeway ramps at West Grand Avenue and at Mandela Parkway. I-80 east is being widened to provide high occupancy vehicle (HOV) lanes and improved ramp connections to I-580 and the Bay Bridge.

I-238 is a four-lane freeway that connects I-580 to I-880 through unincorporated San Lorenzo. I-238 provides the primary truck link between the project site and I-580 east to the Tri-Valley and Central Valley. Construction is underway to widen I-238 from four to eight lanes.

I-580 is an eight-lane freeway serving Northern Alameda County, Livermore, Tracy, and I-5 south. Access to the project site is provided via the West Grand Avenue/I-80 ramps. Improvements are being made to the I-580 distribution structure as part of the I-880 Cypress Freeway replacement project.

I-880 is an eight-lane freeway that serves west Alameda County, the South Bay, and southern peninsula. Access to I-880 is provided from ramps at Oak and Jackson Streets. The portion of I-880 that directly served the project site collapsed during the 1989 Loma Prieta earthquake. A new I-880 connection from I-980 to I-80 is under construction along a new alignment. A new interchange will be provided at Union and Adeline Streets, an interchange with ramp connection to the south will be provided at 7th Street, and new ramps will be provided to connect West Grand Avenue to I-80 west and I-580 east at Maritime Street. Access to the project site also will be provided to I-80 east along a frontage road from 7th Street to West Grand Avenue where freeway ramps are being constructed.

I-980 is a six- to ten-lane freeway between I-880 and I-580 that provides access to downtown and West Oakland and State Route 24. Access to and from the project site is provided at the 12th Street interchange.

3.9.2.2 Local Vehicular Access Routes

Local access is provided to the project site by Maritime Street, Middle Harbor Road, 7th Street Extension, and 7th Street. Access to FISCO is provided via security gates located at the southern end of Maritime Street and at the southwesterly portion of Middle Harbor Road. A third access connects to 7th

Street just west of Maritime Street; however, this access is no longer being used. Access to the Port marine terminals and local railyards are provided along Maritime Street and Middle Harbor Road.

Maritime Street is a four-lane arterial with a center two-way left-turn lane. It is heavily used by trucks and other traffic accessing the Oakland Outer Harbor terminal area, the Oakland Army Base, the Southern Pacific and Union Pacific Railyards, and other portions of the project site. It provides the primary access to I-80 and I-580 from FISCO and the Port.

Middle Harbor Road is an extension of Adeline Street and is a four-lane arterial with a center two-way left-turn lane via a structure that crosses the railroad tracks. It is heavily used by trucks and other traffic accessing the project site. It provides the primary access to I-880 and I-980 from FISCO and the Port. The southeast entrance to the FISCO site (Gate 2) connects to Middle Harbor Road. At the north end of Middle Harbor Road, a railroad siding track extends across the roadway. Amtrak trains currently block Middle Harbor Road during times when the train car washing facility (located just east of Middle Harbor Road) is being used.

7th Street Extension connects Maritime Street to Middle Harbor Road with a four-lane arterial design consistent with the roadways on each of its ends. The north entrance to the FISCO site is located at the north end of the 7th Street Extension.

7th Street is a four-lane arterial that provides access from Middle Harbor Road to the 7th Street marine terminal area to the west. 7th Street also serves local and crosstown access for West Oakland between Middle Harbor Road and I-980/I-880. Seventh Street is currently closed east of Middle Harbor Road due to construction of the I-880 Cypress Freeway.

3.9.2.3 FISCO Circulation System

Within the FISCO site, the streets are laid out generally in a grid pattern. Three gates are located around the perimeter of the FISCO site. From Gate 1 at the north end of the FISCO site, a bridge carries traffic across 7th Street and the Southern Pacific railroad tracks to an at-grade intersection with 3rd Street. Heavy trucks are not allowed to use this north gate due to weight limits for the bridge structure. Third Street serves as the primary access from Gate 1 to other streets on the base. Pedestrian traffic along 3rd Street is high, particularly during the noon hour. Additionally, areas along the waterfront have significant pedestrian traffic during times when ships are in port.

Gate 2 provides access to a perimeter road, which runs roughly parallel to Middle Harbor Road for approximately one mile. This perimeter roadway serves as an important collector and distributor road for the FISCO site, particularly for

heavy trucks, which must use the Gate 2 access. Gate 3, located at 7th Street west of Maritime Street, is not in service.

3.9.3 Existing Traffic Conditions

Operating conditions for regional highways near the project site have been summarized in reports prepared by transportation agencies responsible for operation and maintenance of those facilities. The discussion of regional highway conditions was taken from those reports. Similar reports for the local roadway system were not available. A separate evaluation of existing conditions for local roadways was performed.

3.9.3.1 Regional Highway Conditions

Frequent congestion occurs on the freeways serving the project site. During the AM peak period, bottlenecks occur on many of the routes leading to the major employment centers. State Route (SR) 24 is congested at its southbound connection to I-580. Bottlenecks regularly occur on westbound I-80 at the I-580 split and on the approach to the Bay Bridge toll plaza. I-238 is congested westbound from I-580 to I-880. On I-580, slowing occurs regularly in both directions between I-80 and I-980. I-980 is congested southbound from the 12th Street off-ramps to I-880 (Caltrans 1993).

During the PM peak period, traffic congestion occurs on most of the routes leading away from the major employment centers. Eastbound SR 24 operates at LOS F from I-580 to the Caldecott Tunnel. I-80 is congested eastbound from I-580 to Central Avenue and westbound at two locations—the I-580 split and the approach to the Bay Bridge toll plaza. On I-238, congestion occurs eastbound from I-880 to I-580. I-580 is congested eastbound between I-80 and the I-980/SR 24 interchange. I-880 is congested southbound from Hegenberger Road to A Street and northbound from Tennyson Road to SR 92. I-980 is congested along its entire length from I-880 to I-580 (Alameda County CMA 1995).

3.9.3.2 Local Street System Conditions

For the local street system, the level of service is controlled by its major intersections. The following eight signalized intersections, identified as having the greatest potential for traffic impacts, were selected for study:

- Maritime Street/Grand Avenue westbound ramps;
- Maritime Street/Grand Avenue eastbound ramps;
- Maritime Street/Burma Road;
- Maritime Street/14th Street;
- Maritime Street/7th Street Extension;
- 7th Street/7th Street Extension;
- Middle Harbor Road/Gate 2 Connection; and
- Adeline Street/3rd Street.

Existing AM and PM peak hour traffic turning movement counts were developed at the study intersections. Traffic data were collected for the study area intersections (US Navy 1995c; City of Oakland 1996; Wiltec 1996) and were adjusted to account for two significant factors. First, an adjustment was made to correct for the effects of construction of the I-880 Cypress Freeway; second, an adjustment was made to account for historic (1990) activity levels on the portion of the FISCO property being used by the Navy.

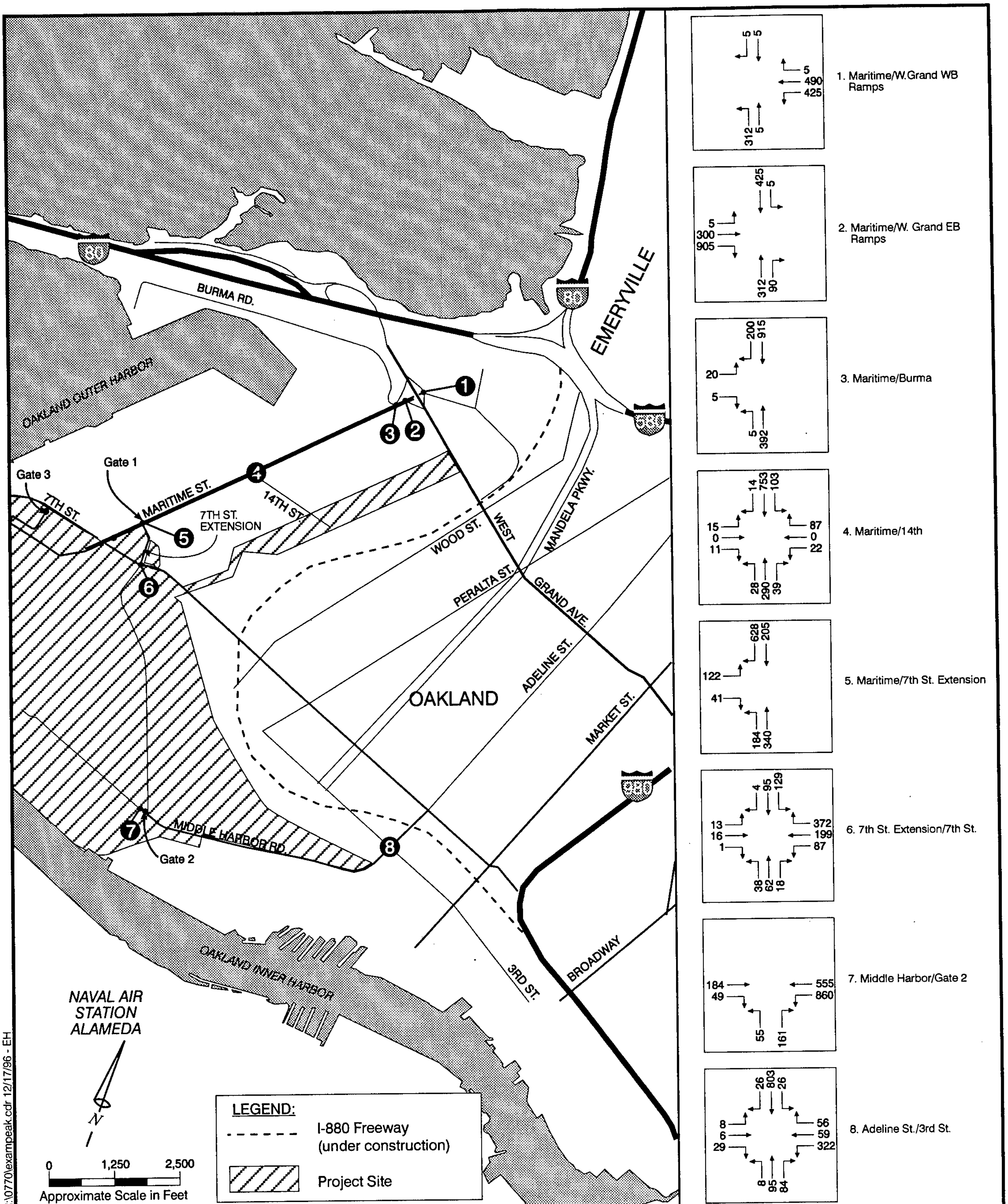
During the time when traffic counts were conducted at three Maritime Street intersections (Grand Avenue eastbound and westbound ramps and Burma Street), the east ramps already had been closed as part of the I-880 Cypress Freeway construction project. Traffic to and from I-80 also was diverted to Burma Street, which has been reconfigured to provide connections to the I-80 ramps. Traffic was reassigned to the configuration of the West Grand Avenue/Maritime Street interchange area as it was designed prior to construction of the I-880 Cypress Freeway.

A second adjustment was made to the existing traffic volumes to account for higher activity levels at the FISCO site prior to the gradual reduction in activity that began after 1990. The traffic adjustment for the higher 1990 employment levels at FISCO was accomplished by assigning the trips generated by the additional employees to destinations along the shortest path using local and regional facilities. The resulting turning movement traffic volumes are shown on Figures 3-16 and Figure 3-17. Trip generation and distribution for the additional FISCO trips are described in subsequent sections.

3.9.4 Truck Traffic Volumes

Traffic in the project site consists of two primary components, commuter traffic and heavy trucks. Large trucks have a substantially greater proportional influence on traffic operations than passenger cars. To determine the relative number of passenger cars and trucks near the project site, 24-hour vehicle classification counts were conducted at two locations, Middle Harbor Road south of 3rd Street and on the 7th Street Extension. Details of the counts at these two locations are provided in Appendix J.1, Figures J.1-1 and J.1-2. Peak hour vehicle classification counts also were conducted at FISCO Gate 2, which provides a southeast access for FISCO at Middle Harbor Road.

A summary of vehicle classification counts during peak hours is shown in Table 3-14.



The diagrams to the right indicate the number of vehicles making each type of turning movement, as indicated by the direction of the arrows, during the morning commute hour.

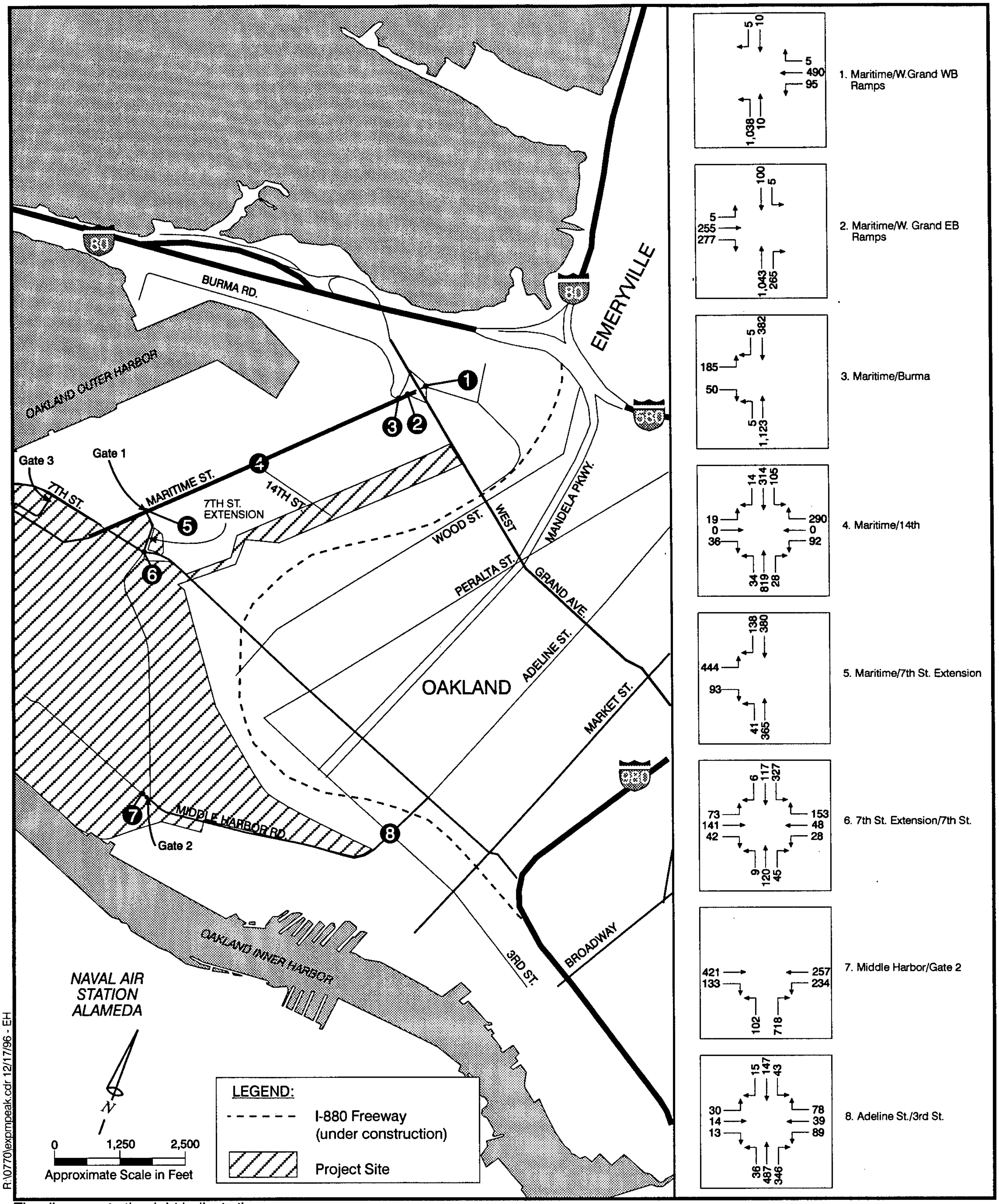
Adjusted Existing AM Peak Hour Traffic Volumes

Source: US Navy 1995; City of Oakland 1996; Wiltec 1996

Fleet & Industrial Supply Center Oakland and Port of Oakland

Port of Oakland

Figure 3-16



The diagrams to the right indicate the number of vehicles making each type of turning movement, as indicated by the direction of the arrows, during the evening commute hour.

Adjusted Existing PM Peak Hour Traffic Volumes

Source: US Navy 1995; City of Oakland 1996; Wiltec 1996

Fleet & Industrial Supply Center Oakland and Port of Oakland

Figure 3-17

Port of Oakland

Table 3-14
Peak Hour Vehicle Classification Counts

Location	Trucks	Total	Percent Trucks	PM Peak Hour Traffic (4:00-5:00 PM) Trucks	Total	Percent Trucks
Middle Harbor Road South of 3rd Street	306	1,079	28%	412	1,013	41%
7th Street Extension	202	569	36%	365	740	49%
FISCO Gate 1 - North Gate	0	1,048	0%	0	779	0%
FISCO Gate 2 - Southeast Gate	105	1,249	8%	209	1,292	16%

Source: Dowling Associates and Wiltec June 6, 1996.

3.9.5 Trip Generation (FISCO)

Trip generation rates were developed for FISCO based on data collected in the field. The trip generation data were developed to adjust existing traffic volumes to 1990 conditions to reflect full Navy occupation of the site and to provide a basis for analysis of 2010 without implementation of the Vision 2000 Program. Details of employment on the FISCO site are contained in Appendix J.1, Table J.1-1.

Trip generation rates for the FISCO site were developed from the existing employment figures and from existing traffic counts at Gates 1 and 2 of FISCO. Existing trip generation rates for FISCO are shown in Table 3-15. The data used to develop the trip generation rates are contained in Appendix J.1, Table J.1-2.

Table 3-15
Existing FISCO Trip Generation

Peak Hour	Direction	Trips Per Employee
AM (7:00 - 8:00)	Inbound	0.28
	Outbound	0.05
	Total	0.33
PM (4:00 - 5:00)	Inbound	0.06
	Outbound	0.21
	Total	0.27

Sources: Traffic counts by Wiltec 1996 and US Navy 1995c
Employment data from US Navy 1996b
Notes: Trips per employee = total number of vehicle trips divided by the number of employees.

3.9.6 Trip Distribution

The routes used by both employees and trucks entering and leaving the project site were identified from data contained in other studies.

3.9.6.1 Employee Commute Routes

The commute trip distribution for FISCO employees was developed from a transportation survey conducted by the Bay Area Air Quality Management District. Commute trip distribution for Port of Oakland employees was developed from truck survey data (Port of Oakland 1993), an economic study (Port of Oakland 1990), and discussions with Port staff (Whittington, A., and Adams, D., June 14, 1996, personal communication). Details on commute trip distribution are contained in Appendix J.1-1, Tables J.1-5 and J.1-6. A summary of commute routes at the perimeter of the ROI is shown in Table 3-16.

Table 3-16
Employee Trip Distribution

Route	FISCO Employees	Port Employees (Vision 2000 Project Site)
SR 24	10%	5%
I-80 East	30%	17%
I-80 West	7%	23%
I-580 East	19%	11%
I-880	19%	30%
Local Streets	15%	14%

Sources: Bay Area Air Quality Management District 1994
Port of Oakland (1990-1996)

3.9.6.2 Truck Haul Routes

The distribution of truck traffic at the marine terminals and rail intermodal yards was derived from a 1993 truck survey conducted by the Port of Oakland (Port of Oakland 1993). A summary of truck haul routes (at the perimeter of the ROI) is shown in Table 3-17. Details on truck distribution are contained in Appendix J.1-1, Tables J.1-7 and J.1-8.

3.9.7 Level of Service

LOS analyses were performed at the study area intersections during the AM and PM peak hours. Both peak hours were considered important because different intersection approaches are in high demand during the two peak periods. Traffic operations at the study area intersections are summarized in Table 3-18. The calculation sheets for this analysis are contained in Appendix J.1, Table J.1-9.

Table 3-17
Truck Traffic Distribution from
Marine Terminals and Intermodal Railyards

Route	Marine Terminals and Intermodal Railyards (% Over-the-road Truck Traffic)
SR 24	2%
I-80 East	20%
I-80 West	9%
I-238	20%
I-580 East	0%
I-880	32%
Local Streets	17%

Source: Port of Oakland 1993

Table 3-18
Existing Intersection Operations

Intersection	AM Peak Hour		PM Peak Hour	
	LOS	Delay[1]	LOS	Delay[1]
Maritime Street/Grand Avenue westbound ramps	B	10	E	47
Maritime Street/Grand Avenue eastbound ramps	D	25	B	10
Maritime Street/Burma Street	A	1	B	5
Maritime Street/14th Street	B	7	B	13
Maritime Street/7th Street Extension	B	11	B	13
7th Street/7th Street Extension	B	11	C	17
Middle Harbor Road/Gate 2 Connection	B	13	D	28
Adeline Street/3rd Street	C	15	B	13

[1] Delay in seconds per vehicle.
Source: Dowling Associates 1995.

Existing levels of service below the City of Oakland's standard are shown at the following two intersections during the PM peak hour:

- Maritime Street/Grand Avenue Westbound Ramps— high delay is shown at this signalized intersection primarily because of a high number of northbound vehicles turning left from Maritime Street to access I-80.

- Middle Harbor Road/Gate 2 Connection— high delay is shown at this signalized intersection primarily because of a high number of northbound vehicles turning right from the FISCO Gate 2 access onto Middle Harbor Road.

3.9.8 Railroads and Railroad/Highway Grade Crossings

The Port is served by three major railroads—Burlington Northern-Santa Fe, Southern Pacific, and Union Pacific. The Port also is served by the Oakland Terminal Railroad, a local switching railroad. The written decision to merge the Southern Pacific and Union Pacific Railroads was issued on August 6, 1996, and served on August 12, 1996, under the United States Department of Transportation Surface Transportation Board's Finance Docket No. 32760, Decision No. 44. The merger is in process. The discussions on Southern Pacific and Union Pacific rail operations are kept separate for the purpose of this analysis.

3.9.8.1 Burlington Northern-Santa Fe Railroad

The Burlington Northern-Santa Fe Railroad has its major Northern California railyard in Richmond but also has rail access to the Oakland Outer Harbor area terminals at the Port of Oakland. Outbound containers must be transported from Richmond to the Port of Oakland by truck. From the Bay Area, Burlington Northern-Santa Fe's trackage goes east to Stockton and then south through the Central Valley to Los Angeles and east to its national network via Flagstaff, Arizona.

3.9.8.2 Southern Pacific Railroad

Southern Pacific Railroad operates three routes for moving freight to and from the Bay Area. The northern route is double-tracked and crosses the Carquinez Strait at Benicia en route to the Sacramento area. This route also accommodates three round-trip "Capitols" passenger trains per day, operated by Amtrak for the state of California.

Southern Pacific also operates a coastal route to Los Angeles via Santa Barbara and has operating rights to the Union Pacific trackage to Stockton via the Altamont Pass where it connects with its Central Valley trackage.

3.9.8.3 Union Pacific Railroad

Union Pacific Railroad serves the Bay Area on trackage to the east via Stockton and the Sierra Nevada Mountains to Salt Lake City, Utah. Union Pacific has a short section of track along 3rd Street that provides access to the Port of Oakland where it operates an intermodal terminal along the Oakland Inner Harbor. Union Pacific serves the Los Angeles area from the east but must use trackage operated by others to connect northern and southern California.

3.9.8.4 Railroad Access to Port of Oakland

The trackage for these railroads has multiple owners and operations. The Burlington Northern-Santa Fe owns its own tracks from Stockton to Richmond and accesses the Port area on tracks owned by the Southern Pacific Railroad. It enters the Port Outer Harbor terminals on Oakland Terminal Railroad tracks, jointly owned by the Union Pacific and Burlington Northern-Santa Fe railroads. The Burlington Northern-Santa Fe has access only to the Oakland Outer Harbor

terminals, while both the Union Pacific and Southern Pacific have access to all Port terminals. The Burlington Northern-Santa Fe is presently not transporting containers to the Outer Harbor terminals. Union Pacific tracks enter the Port via Third Street and then continue to the intermodal yard along the Oakland Inner Harbor. The Southern Pacific has a major railyard and intermodal terminal east of the Port that serves trackage from both the north and south. Train schedules are driven by shipper and Port needs (Metropolitan Transportation Commission 1996).

3.9.8.5 Railroad/Highway Grade Crossings

There are 23 Southern Pacific railroad/highway at grade crossings within the ROI, extending from Cutting Boulevard in Richmond, south to 37th Avenue in southern Oakland. The crossing locations, the number of trains and motor vehicles at each crossing, and other operational data are contained in Appendix J.1, Table J.1-10 through Table J.1-13. Total gate downtime reported at these crossings ranges from 17 minutes per day south of 5th Avenue to 66 minutes per day near Jack London Square, which is located southeast of the project site along the Inner Harbor. Southern Pacific is upgrading warning systems in the Jack London Square area, and gates have been or will be installed at many crossings in this area (e.g., Clay, Franklin, Market, Broadway, and Washington Streets).

Vehicular delay was calculated based on uniform arrival rates for train traffic. This assumption would result in identification of higher delays for motorists than would be expected to occur. The shorter faster Amtrak trains tend to dominate the daytime hours when highway traffic is heaviest; the longer slower freight trains fit within windows of opportunity when there is no conflict with an Amtrak train. As a result, freight train traffic is heavier when highway traffic is light.

3.9.9 Existing Parking Facilities

Parking at the railroad and marine terminals is provided for employees on-site. The land area at the terminals is large relative to the parking demand, and the supply of parking spaces is more than adequate. At FISCO, the demand for parking has decreased with the reduction of Navy activity after 1990. An inventory of on-site parking lots is provided in Table 3-19. All parking lots are paved.

3.9.10 Transit System

The project site is served by an extensive network of transit services. Alameda-Contra Costa (AC) Transit provides bus service, the BART system operates the West Oakland station nearby, Amtrak provides service on the Southern Pacific rail lines, and ferry service is provided from Jack London Square to Alameda and San Francisco.

Table 3-19
Inventory of Existing On-site Parking, FISCO

Parking Facility Description	Total Spaces
North of B Street & west of 4th Street	1,276
Area bounded by B Street, G Street, 3rd Street, & 5th Street	279
3rd Street south of G Street	466
South of B Street & west of 3rd Street	388
Area bounded by 6th Street, 7th Street, & Middle Harbor Road	227
South of Middle Harbor Road at 11th Street	59
Area bounded by Maritime Street, 7th Street, & Middle Harbor Road	613
North of B Street between 4th Street & 5th Street	40
North Boundary Road at 8th Street	35
E Street between 5th Street & 6th Street	58
I Street between 5th Street & 6th Street	176
North Boundary Road at Gate 2	9
Total	3,626

Source: US Navy 1988c

3.9.10.1 AC Transit

AC Transit provides bus transit services to residents and visitors along the east shore of San Francisco Bay with an extensive network of local transit lines. A number of primarily commute hour transbay routes traverse the Oakland Bay Bridge into San Francisco. AC Transit also operates a limited number of express bus lines.

Presently, five bus routes serve the project site—Routes A, 13, 62, 82, and 82L. Together, these buses provide service to San Francisco, downtown Oakland, and East Oakland. A summary of AC Transit service to the project site is shown in Table 3-20.

The project site is located at the end of the 82/82L transit route, one of the primary routes for AC Transit. The 82 Line runs from FISCO to Hayward via 7th Street and East 14th Street. Along its route it has over 79 transfer points to other AC Transit routes. AC Transit routes 82 and 82L provide direct service between the West Oakland and 12th Street BART Stations and FISCO.

3.9.10.2 BART

The BART system provides the West Oakland area with direct links to San Francisco and the metropolitan areas of Contra Costa and Alameda Counties. Service frequencies, service route configurations, and train lengths are adjusted to meet service demands. The West Oakland and 12th Street BART stations provide service near the project site. The West Oakland BART station is approximately 1.5 miles east of FISCO Gate 1.

Table 3-20
AC Transit Bus Service in the Study Area

Bus Routes	Type of Service	Routing	Via	Service	Frequency
A	Transbay commute service	San Francisco to FISCO	Bay Bridge, Maritime St., A Street, 3rd Street	6:30AM-7:30AM 3:30PM- 4:30PM Saturdays Sundays & holidays	30 30 na na
13	Local AC service	Piedmont to the Oakland Army Base	Maritime St., 7th Street, Lakeshore Avenue	5:30AM-9AM 9AM-4PM 4PM- 7PM Saturdays Sundays & holidays	15 30 15 na na
62	Local AC service	Fruitvale to West Oakland	Wood Street, Peralta Street, 7th Street, E. 10th Street	6-9AM 9AM-4PM 4PM-7PM 7PM-Midnight Saturdays Sundays & holidays	15 15 15 25-30 20 30
82 (82L)	Local AC service (limited, express service)	FISCO to Hayward	7th Street, West Oakland BART, E. 14th Street	5AM-9AM 9AM-4PM 4PM-7PM 7PM-Midnight Saturdays Sundays & holidays	15 12 15 10-20 15-30 15-30

Source: AC Transit 1996

na = not applicable

3.9.10.3 Amtrak Rail Service

Amtrak provides rail service in the study area with several regional (short-haul) and nationwide (long-haul) routes. Amtrak, the Port of Oakland, and Caltrans completed construction of a new Jack London Square station in 1995. Amtrak and the City of Emeryville have constructed a new Emeryville station off Powell Street. For most trains, Amtrak provides dedicated bus connections to and from its sales office located in the San Francisco Ferry Terminal. Amtrak service includes the following long-haul and short-haul services:

The Coast Starlight. The Coast Starlight travels between Los Angeles and Seattle and runs daily during the summer. It has run on a reduced weekly schedule during the winter off-peak season.

The Chicago Zephyr. The Zephyr travels between Oakland and Chicago and recently was reduced to three runs a week between Oakland and Salt Lake City.

San Joaquin Service. With financial assistance from the state of California, Amtrak operates four daily round-trips between Emeryville and Bakersfield. Dedicated bus service provides connections to Los Angeles and many other California communities.

Capitol Corridor. The Capitol Corridor is serviced by four train sets between the Sacramento/Roseville area and the Bay Area. Three trains per day provide extended service beyond Oakland to San Jose via Fremont and Santa Clara. The Capitol Corridor service is operated by Amtrak under contract to the California Division of Rail unit of Caltrans. There is legislation pending to transfer the Capitol Corridor operations to BART.

3.9.10.4 Alameda Oakland Ferry Service

On weekdays twelve ferry trips operate between the East Bay and San Francisco. Westbound ferry service operates between 6:00 AM and 8:50 AM and eastbound service runs between 6:30 PM and 8:20 PM. On the East Bay side, the AM ferry service departs Oakland's Clay Street ferry terminal at Jack London Square for a scheduled ten minute cruise across the Oakland Inner Harbor to Alameda's Main Street ferry terminal just east of NAS Alameda's main gate.

From Alameda, the Bay Breeze ferry can traverse the bay to the ferry terminal at the foot of San Francisco's Market Street in approximately twenty minutes. The Blue and Gold Fleet's older mono-hulled ferries take about twice as long to make the crossing. Because the Blue and Gold Fleet is based out of Pier 39, San Francisco, it can provide instant supplemental service in the eastbound direction if the passenger load warrants.

Transit access to the Oakland ferry terminal from the FISCO facility would require a downtown Oakland bus transfer. Bus service without a transfer would require a one-half mile walk to the waterfront from 7th Street at Broadway.

Patronage of the ferry operations has increased over the years, as shown in Table 3-21. In addition to regular commuters, the ferries provide an attractive means for tourists and visitors from the East Bay to access downtown San Francisco and the Fisherman's Wharf area.

Table 3-21
Alameda Oakland Ferry Service Patronage

Terminal	1990	1991	1993	1994	1995	1996
Oakland	72,823	106,137	114,982	129,706	152,374	191,211
Alameda	114,512	134,501	133,799	140,387	166,943	183,974
Total	187,335	240,638	248,781	270,093	319,317	375,185
Weekday Trips	586	713	706	783	878	1,014

Source: Sanchez, E., January 7, 1997, personal communication

3.9.11 Bicycle and Pedestrian System

Bicycle and pedestrian circulation is generally provided on-street. The Middle Harbor Road and Maritime Street overcrossings do not have wide shoulders for bicycles.

Sidewalks are provided along most public streets in the area, except for Middle Harbor Road. The Middle Harbor Road and Maritime Street overcrossings have sidewalks on one side of the bridge structures. On FISCO, sidewalks are provided adjacent to office facilities but are generally not available in other locations.

3.10 AIR QUALITY

This section identifies existing air quality conditions in the vicinity of the FISCO/Vision 2000 project site and in the region. A discussion of air quality planning requirements and air quality permits and the Federal Clean Air Act conformity process is provided in Appendix E.

The ROI for air quality issues varies according to the type of air pollutant. Pollutants that are directly emitted, such as carbon monoxide and some particulate matter, have a ROI generally restricted to areas in the immediate vicinity of the emission source. Pollutants produced by chemical reactions in the atmosphere, such as ozone and secondary particulate matter, have a ROI that includes the entire San Francisco Bay Area.

3.10.1 Climate and Meteorology

The San Francisco Bay Area experiences a Mediterranean-type climate, characterized by mild temperatures and conditions. Weather data monitored at Oakland International Airport and the National Weather Service in Oakland are representative of conditions at the site. Daily temperature variations are typically 42 to 59°F during the winter and 54 to 72°F during the summer. Annual precipitation averages about 18 inches, falling mostly from October through April.

Prevailing winds are from the west or northwest for most of the year, with southeasterly winds common during winter months. Average wind speeds are 7 to 10 mph during the fall and winter and 7 to 13 mph during the spring and summer. Strong winds (wind speeds above 20 mph) are recorded 2 to 5 percent of the time during most months, with the highest frequency during late winter and spring.

3.10.2 Ambient Air Quality Standards

Both the state of California and the federal government have established ambient air quality standards for several different pollutants (Table 3-22). Pollutants covered by federal or state ambient air quality standards often are referred to as criteria pollutants. As indicated in the table, ambient standards for some criteria pollutants have been set for both short and long periods. Most ambient air quality standards have been set to protect public health. State ambient air quality standards for some pollutants are based on other considerations (e.g., protection of crops or materials or avoidance of nuisance conditions). Air quality standards for particulate matter are based on the inhalable component of suspended particulate matter (PM_{10}).

3.10.3 Existing Air Quality Conditions

Ozone, carbon monoxide, and particulate matter are the major pollutants of concern in the San Francisco Bay Area and are monitored at a number of locations. The monitoring stations closest to the project site are located on Alice

Table 3-22
Ambient Air Quality Standards Applicable in California

			Standard, as parts per million by volume		Standard, as micrograms per cubic meter		Violation Criteria	
Pollutant	Symbol	Averaging Time	California	Federal	California	Federal	California	Federal
Ozone	O_3	1 Hour	0.09	0.12	180	235	If exceeded	If exceeded on more than 3 days in 3 years
Carbon monoxide	CO	8 Hours	9.0	9	10,000	10,000	If exceeded	If exceeded more than 1 day per year
Inhalable particulate matter	PM_{10}	Annual Geometric Mean	—	—	30	—	If exceeded	If exceeded
		Annual Arithmetic Mean	—	—	—	50		
		24 Hours	—	—	50	150	If exceeded	If exceeded more than 1 day per year
Nitrogen dioxide	NO_2	Annual Average	—	0.053	—	100		If exceeded
		1 Hour	0.25	—	470	—	If exceeded	
Sulfur dioxide	SO_2	Annual Average	—	0.03	—	80		If exceeded
		24 Hours	0.04	0.14	105	365	If exceeded	If exceeded more than 1 day per year
		1 Hour	0.25	—	655	—	If exceeded	
Lead particles	Pb	Calendar Quarter	—	—	—	1.5		If exceeded more than 1 day per year
		30 Days	—	—	1.5	—	If equaled or exceeded	
Sulfate particles	SO_4	24 Hours	—	—	25	—	If equaled or exceeded	No federal standards
Hydrogen sulfide	H_2S	1 Hour	0.03	—	42	—	If equaled or exceeded	No federal standards
Vinyl chloride	C_2H_3Cl	24 Hours	0.010	—	26	—	If equaled or exceeded	No federal standards

Notes: All standards are based on measurements at 25° C and 1 atmosphere pressure.
Decimal places shown for standards reflect the rounding precision used for evaluating compliance.
National standards shown are the primary (health effects) standards.

Source: California Air Resources Board 1993a.

Street near Jack London Square in Oakland and at the county hospital in San Leandro. The Alice Street monitoring station measures ozone and carbon monoxide (CO) levels. The San Leandro monitoring station measures ozone and PM_{10}. Table 3-23 summarizes recent monitoring data for ozone, carbon monoxide, and PM_{10}.

Table 3-23
Summary of Recent Air Quality Monitoring Data for the FISCO/Vision 2000 Area

Monitoring Station	Air Quality Indicator	1990	1991	1992	1993	1994	1995
		OZONE					
Oakland - Alice Street	Peak 1-hour value (ppm)	0.06	0.06	0.08	0.11	0.06	0.11
	Days above federal standard	0	0	0	0	0	0
	Days above state standard	0	0	0	1	0	1
San Leandro - Co. Hospital	Peak 1-hour value (ppm)	0.07	0.12	0.11	0.12	0.09	0.15
	Days above federal standard	0	0	0	0	0	3
	Days above state standard	0	2	2	3	0	6
		CARBON MONOXIDE					
Oakland - Alice Street	Peak 1-hour value (ppm)	8.0	9.0	7.0	7.0	7.0	5.0
	Peak 8-hour value (ppm)	6.1	6.8	4.6	4.9	5.5	3.9
	Days above federal standard	0	0	0	0	0	0
	Days above state standard	0	0	0	0	0	0
		PM_{10}					
San Leandro - Co. Hospital	Peak 24-hour value ($\mu g/m^3$)	123	99	56	51	62	47
	Annual geometric mean ($\mu g/m^3$)	29.3	27.6	22.7	18.1	18.7	16.9
	Annual arithmetic mean ($\mu g/m^3$)	34.5	32.4	24.9	20.8	21.1	19.5
	Number of 24-hour samples	26	60	61	61	61	61
	% of samples above federal standard	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
	% of samples above state standard	15.4%	16.7%	3.3%	1.6%	1.6%	0.0%

Notes: ppm = parts per million by volume.
$\mu g/m^3$ = micrograms per cubic meter.
Federal 1-hour ozone standard is 0.12 ppm; state 1-hour ozone standard is 0.09 ppm.
Federal 1-hour carbon monoxide standard is 35 ppm; state 1-hour carbon monoxide standard is 20 ppm.
Federal 8-hour carbon monoxide standard is 9 ppm; state 8-hour carbon monoxide standard is 9.0 ppm.
Federal PM_{10} standards: 50 $\mu g/m^3$, annual arithmetic mean; 150 $\mu g/m^3$, 24-hour average.
State PM_{10} standards: 30 $\mu g/m^3$, annual geometric mean; 50 $\mu g/m^3$, 24-hour average.
24-hour PM_{10} samples are collected approximately once every six days. Other pollutants are monitored continuously (except for instrument calibration and maintenance periods).
Source: California Air Resources Board 1990; 1991a; 1992a; 1993a; 1994, 1995.

As indicated by Table 3-23, federal and state standards for carbon monoxide have not been exceeded in recent years. Likewise, the federal air quality standards for ozone and PM_{10} have not been exceeded in recent years. However, the more stringent state ozone and PM_{10} standards have been exceeded at the San Leandro monitoring station a few times each year.

Several violations of the federal ozone standard occurred in the Bay Area during 1995. Complete statistical summaries of the 1995 data are planned to be published in early January 1997. Most of the ozone violations occurred in the southern and eastern portions of the Bay Area (Contra Costa, Alameda, and Santa Clara Counties). No violations of the federal ozone standard occurred at the Alice Street monitoring station during 1995, but the federal standard was exceeded three times at the San Leandro station. Additional violations of the federal ozone standard occurred in the Bay Area during the summer months of 1996.

3.10.4 Air Pollutant Emission Sources

Operations at FISCO include numerous stationary and mobile emission sources. Stationary sources include natural gas-fueled boilers, fuel storage tanks, gasoline dispensers, and paint spray booths. In 1992 there were 28 stationary sources at FISCO operating under permits issued by the Bay Area Air Quality Management District (BAAQMD). In addition, there was one stationary source exempt from BAAQMD permit requirements (US Navy 1994). Permit exemptions are based on conditions where equipment capacity, material usage, or emissions are below designated BAAQMD thresholds. In 1995, there were 25 stationary emission sources at FISCO, 13 of which operated under BAAQMD permits; the other 12 sources were exempt from BAAQMD permit requirements (BAAQMD 1995).

FISCO is one of five Navy facilities in the Bay Area that are closing. The Navy is preparing reports to document the stationary and mobile source emission reductions that will occur as a result of these closures.

Average daily emissions from stationary sources at FISCO during 1992 were estimated at 16 pounds per day of organic compounds, 53 pounds per day of nitrogen oxides, 13 pounds per day of carbon monoxide, and 2 pounds per day of PM_{10} (US Navy 1994). Estimated emissions for 1995 were 1 pound per day of organic compounds, 53 pounds per day of nitrogen oxides, 13 pounds per day of carbon monoxide, and no emissions of PM_{10} (BAAQMD 1995).

Mobile sources at FISCO included motor vehicles (employee and visitor vehicles, commercial vehicles, and government vehicles), industrial equipment (forklifts, cranes, and mobile generators), ships, and small craft. There were 3,315 full-time personnel at FISCO in 1992. If FISCO had continued operating at the 1992 level of activity, mobile source emissions in 2001 would have been 88 tons per year of organic compounds, 122 tons per year of nitrogen oxides, 581 tons per year of carbon monoxide, 20 tons per year of PM_{10}, and 22 tons per year of sulfur oxides (US Navy 1996g).

3.11 NOISE

This section provides a brief introduction to noise terminology and an overview of existing noise conditions at the FISCO/Vision 2000 Project site. Noise-related regulatory considerations are presented in Appendix E. Because noise levels decrease with increasing distance from the noise source, there is a fairly limited region of influence for noise issues. For this EIS/EIR, the overall ROI is the northwestern portion of Oakland (south of I-580 and west of Market Street). A more localized ROI of about one half mile from the noise source is appropriate for many discrete noise sources.

3.11.1 Noise Terminology

Sound travels through the air as waves of small pressure fluctuations caused by some type of vibration. In general, sound waves travel away from the noise source as an expanding spherical surface. The energy contained in a sound wave is consequently spread over an increasing area as it travels away from the source. This results in a decrease in loudness at greater distances from the noise source.

Sound level meters measure the actual air pressure fluctuations caused by sound waves, with separate measurements made for different sound frequency ranges. These measurements are reported using a decibel (dB) scale. Decibel scales are a logarithmic index based on a ratio of the actual pressure fluctuations generated by sound waves compared to a standard reference pressure value.

Most sounds consist of a broad range of sound frequencies. Because the human ear is not equally sensitive to all frequencies, a large number of frequency weighting schemes have been used to develop composite decibel scales that approximate the way the human ear responds to noise levels. The "A-weighted" decibel scale (dBA) is the most widely used for this purpose. The A-weighted scale significantly reduces the measured pressure level for low frequency sounds while slightly increasing the measured pressure level for some high frequency sounds.

Varying noise levels are often described in terms of the equivalent constant decibel level. Equivalent noise levels (Leq) are used to develop single-value descriptions of average noise exposure over various periods of time. Such average noise exposure ratings often include additional weighting factors for potential annoyance due to time of day or other considerations. The Leq data used for these average noise exposure descriptors generally are based on A-weighted sound level measurements.

Average noise exposure over a 24-hour period is often presented as a day-night average sound level (L_{dn}) or a community noise equivalent level (CNEL). L_{dn} values are calculated from hourly Leq values, with the Leq values for the nighttime period (10 PM to 7 AM) increased by 10 dB to reflect the greater disturbance potential from nighttime noises. CNEL values are very similar to L_{dn} values but include a 5 dB annoyance adjustment for evening (7 PM to 10 PM) Leq

values in addition to the 10 dB adjustment for nighttime Leq values. Unless specifically noted otherwise, L_{dn} and CNEL values are assumed to be based on dBA measurements.

3.11.2 Existing Noise Conditions

3.11.2.1 Sensitive Receptors

Sensitive receptors are land uses, such as residences, schools, libraries, hospitals, and similar uses that are considered to be sensitive to noise. Sensitive on-site noise receptors include three FISCO housing units located east of 3rd Street. Sensitive off-site receptors include the West Oakland residential area located north and east of the new I-880 Cypress Freeway and approximately one-quarter mile east of the far eastern perimeter of the proposed rail terminal on the Southern Pacific West Oakland Railyard property.

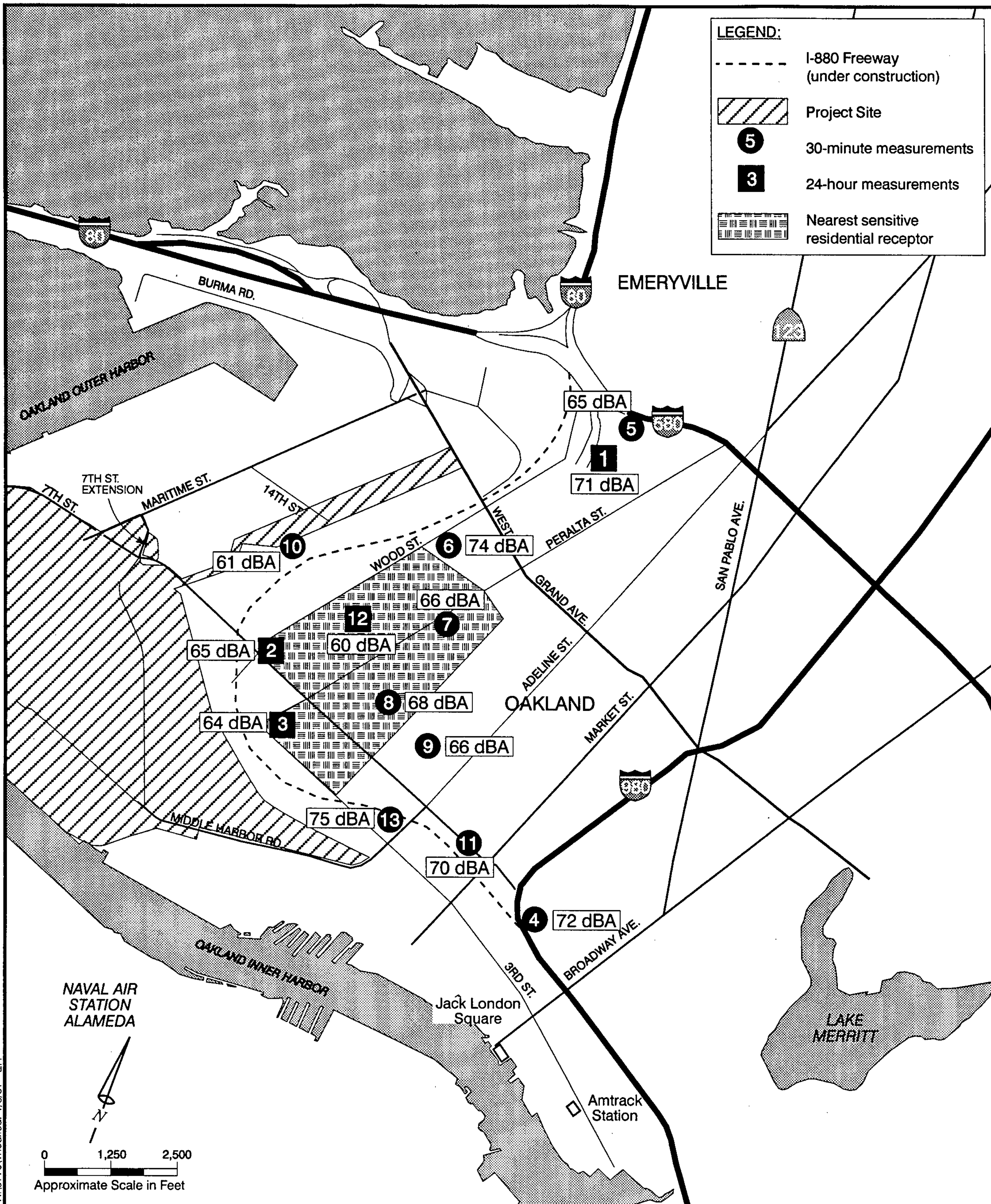
3.11.2.2 Noise Conditions

The noise element of the Oakland Comprehensive Plan identifies highway traffic and airport flight operations as the noise sources of greatest concern in most portions of Oakland. Railroad operations, industrial facilities, and existing marine terminal activities (including container operations, maintenance activities, and ship traffic in adjacent waters) are the primary noise sources in the project site area. In June 1996, Oakland adopted new noise ordinance provisions for the Oakland municipal code and Oakland planning code (Ordinances 11893, 11894, and 11895). Appendix K provides a summary of noise limits contained in sections of these ordinances.

Limited data are available concerning noise levels at the project site. CNEL levels on FISCO were estimated to be above 75 dB in the mid-1980s (US Navy 1990c). Noise levels may have declined somewhat since that time, due to changes in aircraft flight operations from Alameda Naval Air Station.

During 1990 and 1991, ambient noise levels were measured at 13 locations in northwestern Oakland as part of studies conducted for the I-880 Cypress Freeway replacement project (California Department of Transportation and US Federal Highway Administration 1991). As indicated on Figure 3-18, many of these noise monitoring locations are located adjacent and to east of the Port of Oakland and FISCO properties. Noise measurement data were reported as 30-minute Leq values for nine sites and as 24-hour Leq values for the other four measurement sites. The 24-hour noise measurements were reported as 24-hour Leq values, not as L_{dn} or CNEL values. L_{dn} or CNEL values generally would be 3 to 5 decibels higher than the 24-hour Leq value.

Environmental studies conducted for the Oakland Amtrak station in Jack London Square identified an L_{dn} of 72.4 dB in 1991, before construction of the Amtrak station (Brown-Buntin Associates 1991). The noise analysis for the



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Ambient noise levels were measured at 13 locations in northwestern Oakland as part of studies conducted for I-880 Cypress Freeway replacement project.

30-Minute and 24-Hour Noise Measurements in the Cypress Freeway Corridor

Source: CSAA 1996; Caltrans & FWHA 1991

Fleet & Industrial Supply Center Oakland
and Port of Oakland

Port of Oakland

Figure 3-18

Amtrak station concluded that there would be no noticeable change in ambient noise levels as a result of trains stopping at the Amtrak station.

Three additional short-term noise measurements were taken near Jack London Square (approximately 1.5 miles southeast of FISCO) during January 1993 (Brady and Associates, Inc. 1994). Two of the measurements (15-minute Leq values of 55 dBA at the Waterfront Plaza Hotel and 61 dBA at Oakland Fire Station #2) were taken during periods when there was no train traffic. A third measurement (a 15-minute Leq of 66 dBA at Water Street and Washington Street) included one train movement along the Embarcadero.

Noise levels on the project site probably are comparable to noise levels in the adjacent neighborhoods, although localized zones of higher noise levels are likely in the Southern Pacific and Union Pacific Railyard areas. Ambient noise levels on the project site are compatible with industrial land uses.

3.12 UTILITIES

This section reviews the utility systems and services at the FISCO/Vision 2000 project site, including electrical, natural gas, steam distribution, potable water and fire protection, wastewater collection and treatment, stormwater sewer, telephone and telecommunications, cable television, and solid waste collection. This section also describes the current condition of all utility systems as well as near-term ownership, operations, and maintenance conditions agreed upon by the Port and the Navy.

No regulations govern utilities as a single entity; the different utilities are subject to different state, local, or federal regulations. These may be municipal codes, permitting requirements, legislation, or local, state, or federal agency requirements. The regulations specific to the various utilities at the project site are discussed in Appendix E. Table 3-24 summarizes the utility providers at the project site.

The ROI for the utilities discussion is the project site as well as the local service area that would provide off-site utility services, such as wastewater treatment and landfill disposal.

3.12.1 Electrical Systems

Power is delivered to FISCO by the Navy Public Works Center (PWC) (via Pacific Gas and Electric [PG&E] lines) from the Davis Substation, located at 7th Street and 7th Street Extension on the northern portion of FISCO, via a 12.5-kilovolt (kV) feeder. This line feeds both substations A (Building 211) and B (Building 441A). An inactive 12-kV backup feeder enters from the south at 4th and M Streets and runs in underground duct banks to Substation B, located at 5th and K Streets. An emergency 12-kV feeder also enters from the south at Building 746. An inactive but usable 12-kV feeder, owned by PG&E, extends from 7th and Ferry Streets to the capacitor bank at Substation A.

PWC owns the electrical distribution networks at FISCO. Electrical lines west of 6th Street are carried in underground ducts; those east of 6th Street are mounted on overhead lines. The system is in adequate condition and is capable of providing service to existing load demands (Port of Oakland and US Navy 1994). The Port operates and maintains the electrical distribution system on Port-leased portions of FISCO. Current plans call for ownership of the electrical distribution system to be transferred to EFA West upon disestablishment of PWC in October 1997 and for the Port to assume responsibility for the operation and maintenance of the entire system in April 1997.

Electrical service to nearby non-Navy properties is provided by PG&E via overhead lines. Middle Harbor Road customers are served by 12-kV or lower voltage distribution systems. The Port delivers power to Port customers from a Port-operated substation, also located at 7th Street and 7th Street Extension.

3.12.2 Natural Gas

PG&E provides natural gas service to the boundary of FISCO; however, PWC owns the natural gas infrastructure at FISCO. Three distribution systems, A, B, and C, supply the site with natural gas. System A is approximately 44 years old; systems B and C are approximately 53 years old. Present Port operations at FISCO do not require natural gas to operate. Current plans call for ownership of the natural gas distribution system to be transferred to EFA West upon disestablishment of PWC in October 1997 and for the Port to assume responsibility for the operation and maintenance of this system in April 1997. PG&E provides natural gas service to other non-Navy properties within the project site.

Table 3-24
Utility Providers to the Project Site

Utility System	Utility Provider	
	FISCO	**Port Lease Areas**
Potable water	PWC from EBMUD	PWC from EBMUD
Sanitary wastewater	PWC from EBMUD	PWC from EBMUD
Solid waste	PWC	Waste Management of Alameda
Telephone	NAVTELCOM	Pacific Bell and NAVTELCOM
Electricity	PWC from PG&E	PWC from PG&E
Natural gas	PWC from PG&E	NA
Steam	PWC	NA
	Non-Navy Properties	
Potable water	EBMUD	
Sanitary wastewater	EBMUD	
Solid waste	Waste Management of Alameda	
Telephone	Pacific Bell	
Electricity	PG&E	
Natural gas	PG&E	
Steam	NA	

NA - Not Applicable
PWC – Public Works Center
NAVTELCOM – Naval Telephone and Computer Systems
Sources: Harvey, T., April 19, 1996, personal communication
Parsons, J., May 23, 1996, personal communication
Guldner, E., June 5, 1996, personal communication
Andrews, R., June 11, 1996, personal communication

3.12.3 Steam Distribution

In 1994 and 1995, the Navy installed a modern steam distribution system that supplies steam to the USNS Mercy at Pier 4, Navy Piers 4 and 5, and across 3rd Street to the buildings along that road (Guldner, E., June 5, 1996, personal communication). The steam plant is located in Building 131 on Pier 4. There are no steam generation or distribution facilities on the non-Navy properties within the project site.

3.12.4 Potable Water and Fire Protection System

EBMUD provides water to the entire project site. PWC operates a combined potable water and fire protection distribution system at FISCO. EBMUD has direct connections to non-Navy properties. The FISCO system was upgraded with new lines and valves in 1985 and 1986 (LSA Associates, Inc. 1995a). Water is delivered to FISCO by EBMUD through four EBMUD-metered connections. The combined capacity of these supply lines is 7,100 gallons per minute (Bechtel 1984). Additional fire protection water is stored in a 320,000-gallon ground-level storage tank (Structure 751), located adjacent to the fire protection pumphouse in Building 750. A second 320,000-gallon tank (Structure 752) was damaged in the Loma Prieta earthquake and is no longer used.

PWC owns, operates, and maintains the water system on FISCO. However, the Port is currently responsible for the operation and maintenance of the water system on Port-leased portions of FISCO. Current plans call for ownership of the potable water distribution system to be transferred to EFA West upon disestablishment of PWC in October 1997 and for the Port to assume responsibility for the operation and maintenance of the entire system in April 1997.

3.12.5 Wastewater Collection and Treatment System

Wastewater at FISCO is collected by a network of sewer lines and transported to the EBMUD 30-inch sewer main along 7th Street. The FISCO collection system is in reasonable condition and has adequate capacity for present needs. FISCO also receives wastewater from NAS Alameda via a 16-inch force main line that runs northbound under 8th Street from the Union Pacific Intermodal Railyard. This line becomes a gravity main near Building 710, where FISCO sewage feeds into the line, then connects to the EBMUD system. EBMUD provides sewage collection and treatment services to other portions of the project site.

Ship sewage is collected by the ships' sewage collection system where it flows to the ships' holding tank in Building 336. From there it is pumped to the FISCO sewage main and then to the city main. FISCO also operates a 150 gallon-per-minute bilge water and oily wastewater treatment plant.

PWC owns, operates, and maintains the wastewater collection system within the FISCO site. However, the Port is responsible for operation and maintenance of this system on Port-leased portions of FISCO. Current plans call for ownership of this system to be transferred to EFA West upon disestablishment of PWC in October 1997 and for the Port to assume responsibility for the operation and maintenance of this system in April 1997.

The main EBMUD wastewater treatment plant, located at the foot of the San Francisco-Oakland Bay Bridge, has a dry weather treatment capacity of 120 million gallons per day (MGD) and a wet weather treatment capacity of 320 MGD; however, the plant can pump a maximum of 415 MGD by using a wet

weather storage basin (Harvey, T., April 19, 1996, personal communication). The wet weather capacity is greater than the dry weather capacity due to the presence of stormwater in the sewer lines (inflow/infiltration), which dilutes the wastewater, thus requiring less treatment. An average of 10 wet weather events occur each year. The average dry weather flow into the main plant is 80 MGD, or 67 percent of capacity (Harvey, T., April 19, 1996, personal communication).

3.12.6 Stormwater Sewer

Stormwater is collected by storm drains located throughout the site and conveyed to outfalls into the bay along the wharf area and the Oakland Inner Harbor. Each outfall has a tide gate to keep normal tidal fluctuations from infiltrating the system. Elements of the storm sewer system concerned with water quality and ponding are discussed in Section 3.7, Water Resources.

FISCO owns the stormwater sewer infrastructure at this site. However, the Port has accepted responsibility for the operation and maintenance of storm drains located on Port-leased areas of FISCO.

Southern Pacific railroad is in the process of upgrading its stormwater infrastructure. Southern Pacific and other non-Navy properties connect to the Oakland city infrastructure or Navy stormwater system before discharging to San Francisco Bay.

3.12.7 Telephone and Telecommunications System

Telephone service to the project site is provided by Pacific Bell. Within the Navy-occupied portion of FISCO, telephone service is provided by a Navy-owned system designed by AT&T. Telephone service on the Port-leased portion of FISCO is provided by both Pacific Bell and the Navy's phone system. Telephone service to non-Navy properties is provided by Pacific Bell.

3.12.8 Cable Television

There is no cable television service at the project site.

3.12.9 Solid Waste

Federal facilities such as FISCO are required to divert 25 percent (50 percent by the year 2000) of its solid waste from landfills. FISCO is meeting its waste diversion goals. The installation has an active recycling program that diverted approximately 3,100 tons of solid waste from landfills in FY 95. Solid waste at Port-leased areas of FISCO and non-Navy properties is removed by Waste Management of Alameda County and is disposed of at the Altamont Landfill (Andrews, R., June 11, 1996, personal communication). Solid waste at Navy-occupied portions of FISCO is removed by PWC.

3.13 HAZARDOUS MATERIALS AND WASTE

The ROI relative to hazardous materials and waste is the project site and any surrounding area that may have been affected by hazardous materials or hazardous waste originating at the project site or from which hazardous materials or wastes could migrate onto the project site.

3.13.1 Hazardous Materials Management

Hazardous materials are raw materials for a product or process that may be classified as toxic, flammable, corrosive or reactive. Hazardous wastes are waste products, as defined under the Resource Conservation and Recovery Act (RCRA) for federal law and under the Hazardous Waste Control Law Health and Safety Code, Chapter 6.5 and the California Code of Regulations CCR, Title 22 for state law. Hazardous wastes generally are waste products that are classified as ignitable, corrosive, reactive, or toxic under both the CCR Title 22 and RCRA. The storage, use, transportation, generation or handling of these materials is regulated by numerous federal, state, and local agencies. Under both federal and local laws, private businesses involved in the handling of hazardous materials and/or wastes are required to implement hazardous materials management programs that address the permitting or reporting requirements set forth in the regulations. The applicable regulatory requirements are based on the substance involved, the quantity being handled, and the nature of the operations. A discussion of hazardous material and waste regulatory considerations is provided in Appendix E.

3.13.1.1 FISCO Hazardous Materials Management

The materials stored and transferred through FISCO over the years have ranged from office and household supplies to hazardous materials and wastes. Very little manufacturing activities have been reported at FISCO (US Navy 1996h). The Environmental Occupational Safety and Health Office at FISCO is responsible for implementing current compliance programs and for managing site assessments and subsequent site restorations within FISCO. The hazardous materials and waste information provided in this section reflects the most current data available for each area of concern and primarily relies on the information presented in the Final FISCO Environmental Baseline Survey (EBS) (US Navy 1996h) and the Final FISCO Base Realignment and Closure Cleanup Plan (BCP) (US Navy 1996i).

The EBS is an environmental evaluation and summary of all known and suspected areas where hazardous materials and petroleum products have been handled, stored, disposed of, or released within the boundaries of FISCO. The EBS also identifies properties on FISCO that meet the criteria for transfer or lease set forth in the Community Environmental Response Facilitation Act (CERFA). The BCP provides a plan and schedule for investigation and remediation of property that does not meet CERFA standards. The BCP will be revised annually to provide an ongoing status of environmental restoration and associated compliance programs.

FISCO operational areas have included hazardous waste storage or staging areas, transformer storage, dry storage, corrosive materials storage and staging, petroleum and cleaning solvent storage, packing areas, compressed gas storage, maintenance and heavy equipment repair shops, and other storage, handling, and receiving facilities. Hazardous materials handled at FISCO are provided in Appendix L (US Navy 1996h; US Navy 1996i).

Historically, hazardous materials and wastes accumulated at several locations, and approximately 430,000 pounds of hazardous waste was generated annually. The main constituents of the waste disposed of by FISCO included petroleum-contaminated water off-loaded from ships, bilge water, boiler wastewater, aqueous morpholine and waste glacial acetic acid off-loaded from ships, expired and surplus organics, waste paint mostly from ships, waste paint-related materials, paint sludge mostly off-loaded from ships, and aqueous hydrazine solution collected from ships (US Navy 1996h). Currently, these types of ship activities are prohibited at Port of Oakland facilities.

The hazardous wastes generated at the base were transported to a permitted off-site facility for treatment or disposal. FISCO did not treat or dispose of hazardous waste on-site. Wastes generated at FISCO generally were removed within 90 days of generation. The storage of hazardous waste on Lot 612 was permitted for up to one year (US Navy 1996h).

FISCO Federal Facility Site Remediation Agreement

On September 29, 1992, the Navy negotiated a Federal Facility Site Remediation Agreement (FFSRA) with the California Environmental Protection Agency (Cal EPA), California Department of Toxics Substance Control (DTSC), and the RWQCB to address plans for future hazardous materials and waste investigations and cleanup activities at FISCO (US Navy 1996i). The Navy submitted a revised schedule for the FFSRA agreement on October 8, 1996. Under the FFSRA agreement, the Navy agreed to undertake various environmental restoration actions. These tasks include the following:

- Perform pre-remedial work and remedial investigations to determine fully the nature and extent of the threat to human health or welfare or to the environment and to perform a feasibility study for the site to identify, evaluate, and select alternatives for the appropriate remedial actions;

- Identify the nature, objective, and schedule of response actions to be taken at the site;

- Implement the selected remedial actions in accordance with applicable state and federal laws;

- Assure compliance with applicable state and federal hazardous waste and water quality laws and regulations;

- Coordinate response actions at the site with the mission, national security, and support activities at FISCO;
- Expedite the cleanup process to the extent consistent with protection of human health and the environment;
- Initiate, develop, select, and implement response actions, including operable units and the final remedial actions at the site;
- Provide for state oversight of and participation in initiating, developing, selecting, and implementing response actions, including operable units and the final remedial actions undertaken at the site;
- Provide for operating and maintaining any remedial actions selected and implemented; and
- Identify operable unit alternatives that are appropriate at the site prior to implementing of final remedial actions.

FISCO Installation Restoration Program

The Installation Restoration Program (IRP) is a DOD-administered program set up to identify, evaluate, and remediate contaminated sites on federal lands under DOD control. As part of FISCO's IRP, two preliminary assessments, two site inspections, and one hazardous materials assessment have been conducted at FISCO between 1988 and 1991. Of the 99 sites evaluated during these past studies, 25 sites were included in the IRP. Based on recommendations in the hazardous materials assessment report (Cygna Energy Service and ICF Kaiser Engineers 1991) the first preliminary assessment report (Argonne National Laboratories 1988), and interviews with Navy personnel, the remaining 74 sites were not included in the IRP.

As part of the final scoping report (US Navy 1992b), the 25 remaining IRP sites were evaluated and classified into three categories—no further action (NFA), expanded site inspections (ESI), or remedial investigation (RI). To date, 14 of the 25 sites remained in the IRP. The Navy anticipates that two sites are likely to be listed as NFA after the completion of a radiological assessment at site IR-17 and an ESI at site IR-05. Seven IRP sites have undergone removal action (RO). Remedial Investigation/Feasibility Studies (RI/FS) are pending at nine of the 14 IRP sites. A summary of FISCO IRP sites is provided in Table 3-25.

Based on the locations of the 10 RI sites and the nature of the contamination involved, the RI sites have been divided into Remedial Investigation Areas 1 through 3. These areas are depicted on Figure 3-19. The following is an overview of these remediation areas based on the information presented in the final scoping report, the Final EBS, and the Final BCP. A brief discussion of each IRP is presented in Appendix L.

Table 3-25
Summary of FISCO Installation Restoration Program Sites

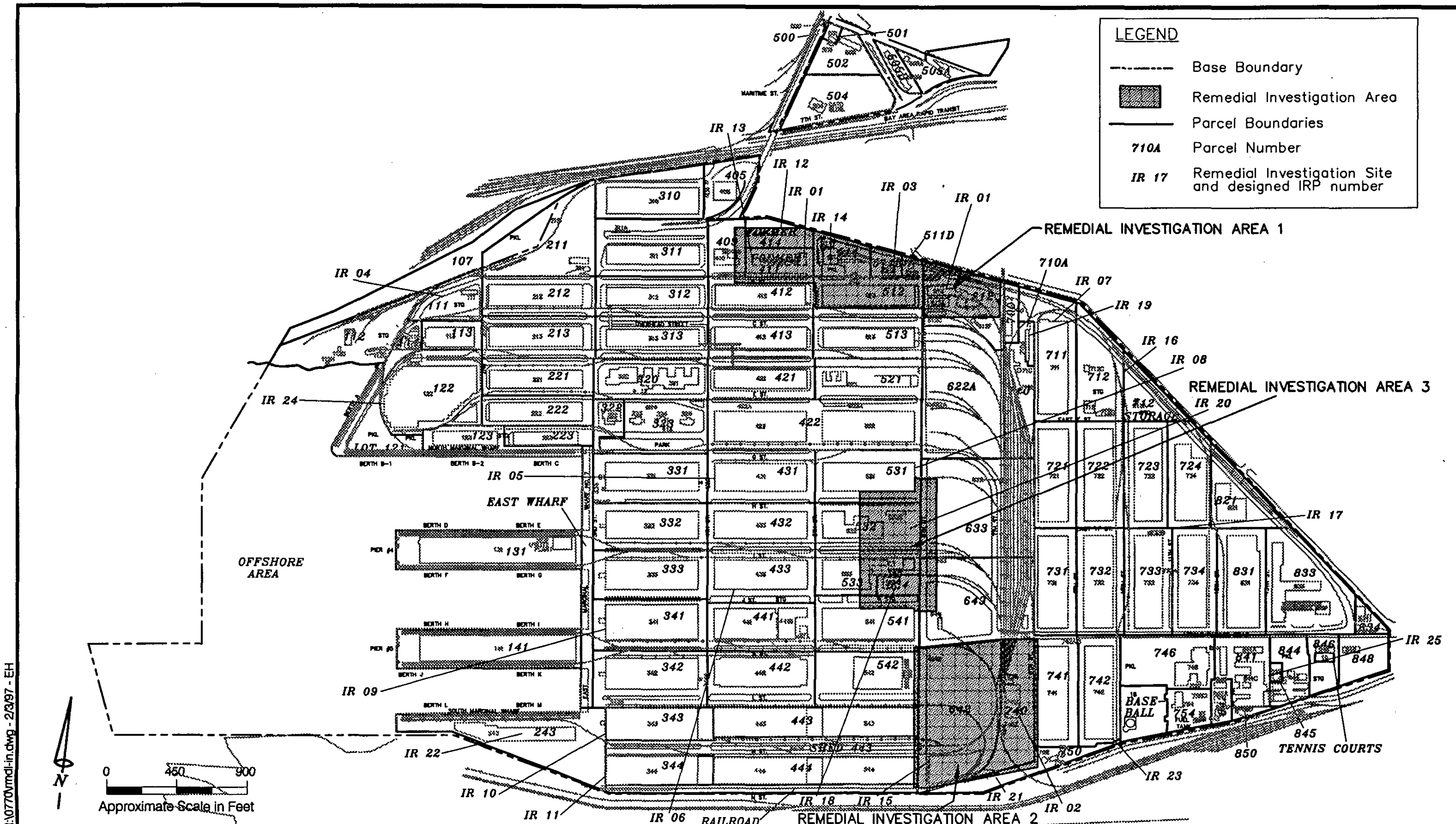
Remedial Investigation Area	IRP Site Number	Parcel Number	Description	Media of Concern	Suspected Contaminants	Completed Phases	Current Status
1	IRP 01	Lot 612	Lot 612: Hazardous Waste Storage Area	Soil & Ground water	Petroleum, metals, VOCs	ESI, RO	Current status under review
1	IRP 03	511E	Building 511E: Redrumming and overpacking hazardous substance containers	Soil & Ground water	Petroleum, metals, VOCs, SVOCs	PA, SI, HMA, Phase I RI, RO	Current status under review
1	IRP 12	414	Former building 414: Maintaining and repairing Navy vehicles	Soil & Ground water	Metals, petroleum, VOCs, SVOCs	PA, SI, & HMA	Phase II RI/FS pending
1	IRP 13	411	Former building 411: Maintaining and repairing Navy vehicles	Soil & Ground water	Metals, Petroleum, VOCs, SVOCs	PA, SI, HMA, Phase I RI	Phase II RI/FS & Field Scale Pilot Test pending
1	IRP 14	511 & 511B	Buildings 511 & 511B: Heavy equipment repair	Soil & Ground water	Petroleum, VOCs, SVOCs	PA, SI, HMA, Phase I RI	Phase II RI/FS pending
2	IRP 02	740	Former buildings 740 & 738: Stained soil areas	Soil & Ground water	Petroleum, VOCs, SVOCs	RO & Phase I RI	Soil Disposal & Phase II RI/FS pending
2	IRP 15	642	Lots 642, 643, & 644: Storing 55-gallon drums containing petroleum-based products and cleaning solvents	Soil & Ground water	Petroleum, VOCs, SVOCs	PA, SI, HMA, Phase I RI, RO	Current status under review
2	IRP 21	740	Lot 645: Storing machine items, such as propellers and ship rudder components	Soil & Ground water	Metals, VOCs, SVOCs, petroleum	ESI, RO	Phase II RI/FS pending
3	IRP 18	534	Building 534: Paint shop, waste paint accumulation	Soil & Ground water	Sandblasting residue, petroleum, VOCs, SVOCs	ESI	Phase II RI/FS pending
3	IRP 20	532	Lot 532: Formerly used as a 90-day accumulation area for hazardous wastes	Soil & Ground water	SVOCs, petroleum, DCA, PCE	ESI	Phase II RI/FS pending
None	IRP 04	111	Lot 111: Storing pesticides and transformers containing PCB-contaminated oils	Soil	DDD, DDE, DDT, chlordane, Arochlor-1260	SI, RI, ESI, RO	Current status under review
None	IRP 05	431	Building 431: Accumulating, sorting, and shipping off-site hazardous materials from incoming ships	Soil	Metals, petroleum, VOCs, SVOCs	PA, ESI	RA, proposed no action site
None	IRP 06	433	Building 433: Receiving and issuing light packing and structural materials	None	None	PA, SI, & HMA	RAP site, no further action.
None	IRP 07	711	Building 711: Receiving and issuing various supplies	None	None	PA, SI, HMA, & RI	RAP site, no further action.
None	IRP 08	531	Building 531: Storing dry goods and batteries	None	None	PA, SI, & HMA	No further action site.
None	IRP 09	341	Building 341: Staging small quantities of hazardous materials for shipment	None	None	PA, SI	RAP site, no further action.
None	IRP 10	343	Building 343: Storing bulk quantities of acids and bases	None	None	PA, SI, & HMA	No further action site.
None	IRP 11	344	Building 344: Storing and packing bulk quantities of acids and bases	None	None	PA, SI, & HMA	No further action site.
None	IRP 16	712	Lot 712: Storing chlorine, oxygen, and nitrogen gas cylinders	None	None	PA, SI, & HMA	RAP site, no further action

Table 3-25 *(continued)*
Summary of FISCO Installation Restoration Program Sites

Remedial Investigation Area	IRP Site Number	Parcel Number	Description	Media of Concern	Suspected Contaminants	Completed Phases	Current Status
None	IRP 17	721, 722, 723, 731, 732, and 733.	Buildings 721, 722, 723, 731, 732, & 733. Storing large quantities of various bulk goods for distribution to Navy exchange stores	Building materials	Radioactive isotopes	PA, SI, & HMA	RA pending. No Further Action site
None	IRP 19	710	Building 710B: Releasing PCBs to soil, resulting in low levels of PCB contamination	Soil	PCBs	PA, ESI, RO	Current status under review
None	IRP 22	243	Building 243: Forklift training operations	None	None	PA, SI, & HMA	RAP site, no further action
None	IRP 23	742	Building 742: Specialized laboratory and shop activities	Building materials	Radioactive isotopes	PA, SI, & HMA	RAP site, no further action
None	IRP 24	122	Building 122: Storing paint and spill cleanup equipment	None	None	PA, SI, & HMA	RAP site, no further action
None	IRP 25	841	Building 841 area: Bioscience research	None	None	PA, SI	RAP site, no further action

Source: US Navy 1996h; US Navy 1996i
Notes: Parcel Numbers are as defined in the EBS and BRAC Closure Plans. FISCO was divided into five principal areas for purposes of lease and potential transfer. These five areas were further divided into parcels for purposes of conducting the environmental investigations and assigning environmental conditions of the property.

DCA - Dichloroacetylene
DDD - Dichlorodiphenyl dischloroethane
DDE - Dichlorodiphenyldichloroethene
DDT - Dichlorodiphenyltrichloroethane
ESI - Expanded site investigation
HMA - Hazardous materials assessment
IRP - Installation Restoration Program
PA - Preliminary assessment
PCB - Polychlorinated biphenyl
PCE - Tetrachloroethylene
RA - Radiological assessment
RAP - Remedial action plan
RI/FS - Remedial investigation/feasibility study
RO - Removal action
SI - Site investigation
SVOCs - Semivolatile organic compounds
VOCs - Volatile organic compounds



The 10 remedial investigation sites at FISCO have been grouped into three remedial investigation areas based on their location and the nature of contamination involved.

Source: Modified from Navy 1996h

Remedial Investigation Areas

Fleet & Industrial Supply Center Oakland
and Port of Oakland

Port of Oakland

Figure 3-19

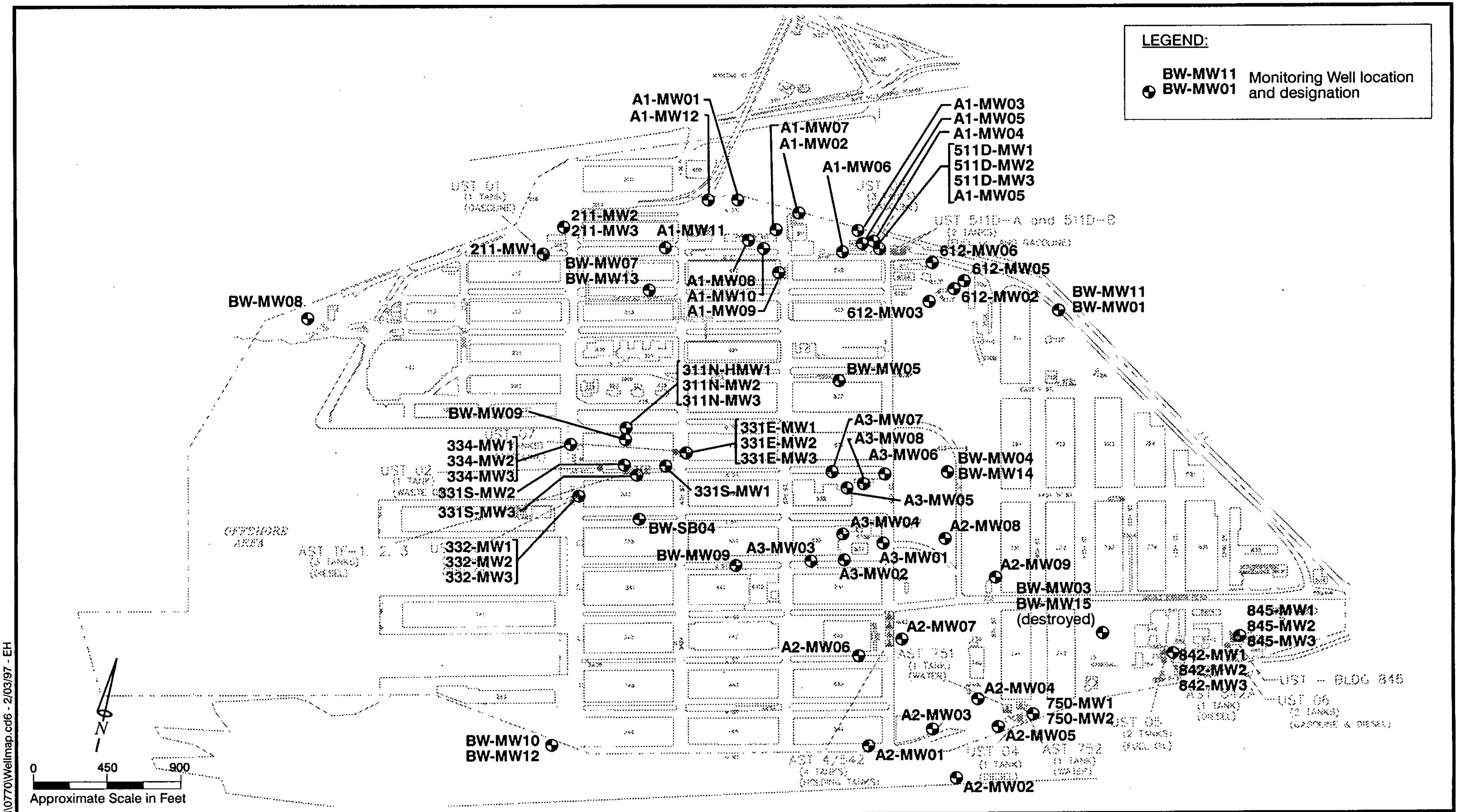
FISCO Remedial Investigation Sites

Low concentrations of volatile organic compound (VOC) contamination have been discovered in the soil within Remedial Investigation Area 1; however, most of the contamination appears to be in the saturated zone in this area. Vinyl chloride was found in the saturated zone and is the only VOC detected above the residential preliminary remediation goal (PRG) (US Navy 1996h). Minor semivolatile organic compound (SVOC) contamination appears to be in the saturated and unsaturated zone. Most of the SVOCs found at FISCO are polynuclear aromatic hydrocarbons (PAH). A portion of the contamination may have been produced by the light industrial activities that have occurred in this area, such as redrumming leaking containers and train and automobile engine repair work. However, some of the VOC contamination may be the result of migration of contaminants from upgradient RI sites. Remedial actions were scheduled for sites IRP 01 and 03 in the summer of 1996 to remove a small amount of heavy metal-contaminated surface soil in this area.

Remediation Investigation Area 2 contains low concentrations of VOC and PAH-contaminated ground water. VOCs in the ground water were detected at concentrations above the tap water PRGs. In addition, analytical results for water samples collected from two monitoring wells within Area 2 showed SVOC contamination at levels two orders of magnitude less than the tap water PRGs. VOC and SVOC concentrations detected in the unsaturated zone soils are at least one order of magnitude less than residential PRGs. Monitoring wells are shown in Figure 3-20. The contamination in this area is likely to have resulted from industrial activities, such as drum storage and hobby shop activities.

Prior to the dredge and fill operations used to construct FISCO, the Manufactured Gas Plant in Oakland and the Pacific Coast Oil Works in Alameda operated nearby. Residues from one or both of these facilities may have contributed hydrocarbons to the natural tidal flats in the area. One remedial action was conducted at Lot 645 in early 1995 to remove metal-contaminated sand-blasting grit. In addition, a remedial action was scheduled for the summer of 1996 to remove a small amount of petroleum-contaminated surface soil in IRP 01 (US Navy 1996h; US Navy 1996i).

Low concentrations of VOCs, SVOCs, and total recoverable petroleum hydrocarbons (TRPH) were detected in the soil and ground water throughout Area 3. None of the VOCs and SVOCs detected exceeded residential PRGs (US Navy 1996h). Since completion of the ESI there have been three additional rounds of ground water sampling, and a baseline risk assessment was prepared. The results are summarized in technical memoranda. However, current data indicate no significant ground water contamination is present, and these RI sites are unlikely to need additional investigations and are likely to be designated as NFA. A no action decision has yet to be discussed formally with the regulatory agencies (US Navy 1996h; US Navy 1996i).



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Monitoring wells at FISCO are used to assess transport of pollutants to groundwater.

Source: Port of Oakland 1996

FISCO Monitoring Well Locations

Fleet & Industrial Supply Center Oakland
and Port of Oakland

Port of Oakland

Figure 3-20

In addition to the ongoing IRP activities being conducted, two actions are underway and consist of removing contaminated soil at sites IRP 01, 02, 03, 15, and 19 and conducting a PCB removal action at site IRP 04. These removal actions are scheduled to be completed in the summer of 1996.

3.13.1.2 Non-Navy Property Hazardous Materials Management

The non-Navy properties at the project site include Port, Union Pacific, and Southern Pacific property. These non-Navy properties generally have been used for industrial and transportation activities that support shipping operations associated with the Port and FISCO. Union Pacific and Southern Pacific both operate large railyards. The materials stored and transferred through the non-Navy properties include a variety of household and industrial goods, raw materials, finished commercial products, and hazardous materials and wastes. Manufacturing activities on the non-Navy properties have been relatively limited. Maintenance and refueling operations associated with railroad cars and fleets of trucks have been conducted on several of these properties.

Hazardous materials management practices for the Port and railroad properties are implemented by individual corporations and businesses that either own the properties or lease them from the Port. These hazardous materials management practices are driven by state and local regulations pertaining to the use, storage, and generation of hazardous materials. The hazardous materials and waste information provided in this section reflects the most current data available and primarily relies on the information presented in the phase I environmental site assessments prepared for Port and railroad properties in August and September 1996. In many cases, complete information on hazardous material management practices and compliance with hazardous materials regulations is not available.

Hazardous materials are used, stored, and generated in several areas of the Port and railroad properties; however, a comprehensive list of these materials is not available. In addition, an assessment of the locations of where hazardous materials or wastes have been handled has not been conducted. Based on the use of these properties, petroleum products and cleaning solvents are likely to be the most commonly used hazardous materials. The railroad and Port properties that are used for shipping freight are also likely to temporarily store and handle a wide variety of hazardous materials.

Several environmental investigations have been conducted on the Port and railroad properties. These investigations have been associated with the removal of underground and aboveground storage tanks. A brief summary of the environmental investigations conducted on each of the properties is as follows.

Don Gary Investments, Ltd., Property

The Don Gary Investments, Ltd., property had been part of the Southern Pacific Railroad until 1960 when it was redeveloped into a freight reconsolidation facility. Several USTs and possibly one AST have been located on this property

(Port of Oakland 1996f). The USTs removed from this property include the following:

- One 8,000-gallon gasoline tank;
- One 2,000-gallon waste oil tank;
- One 6,000-gallon new oil tank;
- One 10,000-gallon diesel fuel tank; and
- Five 20,000-gallon diesel fuel tanks.

Petroleum hydrocarbon contamination as diesel fuel was detected in the soil in the vicinity of the former USTs. Phase separated hydrocarbons (PSH) were reported in one of the diesel UST excavations. In 1992 and 1993, 16 soil borings were drilled as part of a soil and ground water investigation of this property. Nine of the soil borings were drilled on the Port-property leased on a space-assignment basis located west of the Don Gary Investments, Ltd., property. Seven of the soil borings drilled were reported to contain PSH. A PSH plume of approximately 200 feet by 300 feet was believed to exist beneath the Don Gary Investments, Ltd., property. Three of the 16 soil borings located outside of the PSH plume were completed as ground water monitoring wells. Chlorinated solvent and petroleum hydrocarbons were reported in ground water collected from these wells (Port of Oakland 1996f). To date, four ground water monitoring wells and twenty-two soil borings have been installed on this property.

Port Property Leased on a Space-assignment Basis

This property historically has been used for freight reconsolidation and vehicle maintenance. A Southern Pacific impoundment and a large AST were located approximately 250 to 300 feet east of the property (Port of Oakland 1996d). The USTs removed from this property include the following:

- One 8,000-gallon gasoline tank;
- One 10,000-gallon gasoline tank;
- One 500-gallon new oil tank;
- One 285-gallon used oil tank; and
- One 2,000-gallon used oil tank.

Petroleum hydrocarbons, halogenated solvents, and semivolatile compounds were detected in the soil samples collected in the vicinity of the former USTs. Fifteen, soil borings and seven ground water monitoring wells have been installed at this property. Petroleum hydrocarbon contamination as gasoline and diesel fuels were detected in the ground water beneath the property (Port of Oakland 1996d). To date, PSH as diesel has been detected in three of the wells. PSH periodically has been removed from these wells for the last two years.

Union Pacific Railroad Property

Refueling and maintenance operations on railroad locomotives and railcars have been conducted on Union Pacific property. Five USTs have been removed from the property since 1987. Three of the USTs contained either waste oil or bulk oil. The remaining two USTs contained gasoline and diesel.

Petroleum hydrocarbon contamination was reported in the vicinity of the removed USTs. In July 1993, thirteen soil borings were drilled on the property, five of which were completed as ground water monitoring wells. Based on the soil and ground water data collected at the property, petroleum hydrocarbon contamination was detected in the soil and ground water beneath the property. PSH as diesel has been detected under the fueling area of the Union Pacific Intermodal Yard at 1717 Middle Harbor Road, located immediately south of the common boundary between the Union Pacific property and FISCO. Remediation systems have been installed on the Union Pacific property and are currently operating (Port of Oakland 1996e). A second operating remediation system is located in the western part of this railyard near the Western Pacific mole.

Southern Pacific Railroad

Numerous ASTs and impoundments were reported to have been located on the Southern Pacific property, but most have been removed. In addition, a gas plant and creosoting plant also were located on this property. Southern Pacific policy is not to permit environmental investigations on its property unless the property is to be sold or it is mandated to do so by a regulatory agency. Consequently, only a few environmental investigations have been conducted on the property (Port of Oakland 1996g).

Two soil investigations were conducted in the early 1990s along the right-of-way of Middle Harbor Road. These investigations involved drilling 20 soil borings. The results of this investigation indicate that petroleum hydrocarbon contamination as diesel fuel is present in the soil beneath the property (Port of Oakland 1996g).

In 1992, contaminated soil and sludge materials were removed from an impoundment located approximately 500 feet north of Southern Pacific's entrance at 1410 Middle Harbor Road. Fifteen ground water monitoring wells are located within 2,200 feet of the former impoundment. Ground water sampling results for October 1995 indicated that petroleum hydrocarbon contamination is present in the ground water beneath this area (Port of Oakland 1996g).

Use of an impoundment in the northwest corner of the Southern Pacific yard was discontinued in the 1980s. PSH has been reported in the ground water wells near the impoundment. No additional information was available on monitoring or remedial action of the contamination (Port of Oakland 1996g).

3.13.1.3 Oakland Army Base (Entire Base) Hazardous Materials Management

The Oakland Army Base is bound by the same hazardous materials regulatory process as FISCO. The source of Oakland Army Base hazardous materials and waste information is the Oakland Army Base Draft EBS (US Army 1996). The base is in the process of finalizing the EBS and completing a draft BCP under the requirements of the BRAC process. The base is also in the process of coordinating with the appropriate regulatory agencies to address the cleanup issues for this installation. Information from the Draft EBS presented in this section addresses the entire base (422 acres); the portion considered as part of the Vision 2000 Program under the Maximum Marine/Minimum Rail Alternative (11 acres) is a subset of this larger area.

The Oakland Army Base is likely to have handled, stored, and used a variety of hazardous materials. The base has existing environmental management plans and practices to address regulations for the use, storage, and disposal of hazardous materials. However, this base currently has no permitted hazardous waste facilities or landfills.

3.13.2 Asbestos

Asbestos refers to a group of impure magnesium silicate minerals that occur naturally in fibrous form. Asbestos fibers are flexible and break down into fine airborne particles when handled. Asbestos bound as an aggregate or in good condition generally poses few risks and should not be disturbed. However, if the material is in a poor or friable condition, asbestos fibers could be released, posing a risk to human health.

3.13.2.1 FISCO Asbestos

Two asbestos surveys have been conducted at FISCO; one by PEER Consultants (PEER) between November 1991 and July 1992 and the other by PWC in March 1996. A summary of the results of the PEER survey is presented in Appendix L, Table L-4.

PEER conducted extensive nondestructive sampling program, which included the collection of 2,826 bulk samples from 168 buildings, was conducted. Several areas not surveyed included the high-voltage electrical rooms, crawlspaces beneath buildings, structurally damaged or condemned buildings, single membrane roofs that were under the manufacturer's warranty, individual paint samples, and materials stored in the buildings. Based upon historic data and professional judgment of the survey team, other items, including gaskets, fire walls, doors, curtains, and vibration dampening equipment, were assumed to be asbestos-containing material (ACM). With the exception of several small structures where ACMs were either not suspected (and no sampling was performed) or not found, all of the structures were found to contain asbestos at levels in excess of one percent. Asbestos conditions varied by location (US Navy 1996h; US Navy 1996i).

PWC conducted an asbestos survey on the three structures that comprise the Navy officers quarters (Quarters A, B, and C) at FISCO. Based on the results of the PWC survey, 10 materials located inside the officers quarters were inspected and samples for asbestos. None of these 10 materials tested positive for asbestos. Piping insulation identified in all the structures was assumed to be ACM. This material was reported to be in good condition in all the units surveyed and was considered nonfriable material (US Navy 1996d).

DOD policy is that property with ACM will not be disposed of through the BRAC process unless it has been determined that the ACM does not pose a threat to human health at the time of transfer and that the property complies with applicable statutes and regulations regarding ACM. No compliance-related strategy for ACM will be conducted at FISCO by the Navy. The Port of Oakland will be responsible for further characterization, if deemed necessary, and proper abatement of asbestos (US Navy 1996i). The Port would perform asbestos removal in accordance with all applicable local, state, and federal regulations. Asbestos would be disposed of at an authorized landfill. The Port would comply with all remaining laws and regulations relating to asbestos, including requirements associated with inspection, notifications, workplan regulations and construction standard, occupational safety and health regulations, and asbestos emission control.

3.13.2.2 Non-Navy Property Asbestos

No asbestos surveys have been conducted on the Port, Union Pacific, or Southern Pacific properties. Based on the age of construction of some of the structures located on these properties, ACMs are likely to be present on these properties.

3.13.2.3 Oakland Army Base Asbestos

Several asbestos surveys have been conducted at the Oakland Army Base; the latest survey was conducted in December 1995. ACMs have been identified in several of the buildings at the base including buildings on or adjacent to the project site (US Army 1996). Additional information on ACM identified at the base is presented in Appendix L, Table L-17.

3.13.3 Polychlorinated Biphenyls

Polychlorinated biphenyls (PCBs) are a class of chlorinated aromatic hydrocarbons compounds, known as a human carcinogen and relatively resistant to natural degradation processes. Because of its persistence and toxicity and because of its ability to cause ecological damage, PCB manufacturing was discontinued in the United States in 1976.

3.13.3.1 FISCO PCBs

All Navy shore activities that generate, treat, store, or dispose of PCBs must inventory or validate all PCBs and PCB items annually in accordance with Navy procedures and applicable federal and state regulations. At FISCO, PCBs were

used in electrical transformers, capacitors, lighting ballasts, and other similar oil-filled electrical equipment (OFEE). According to Navy records, there is no OFEE at FISCO that is PCB-contaminated (US Navy 1996h). PCB-contaminated equipment is legally defined as equipment with oils containing PCBs in excess of 50 parts per million (ppm). Although oil-filled equipment with a PCB content under 50 ppm is not regulated under federal PCB management and disposal regulations, wastes containing oil with a PCB content greater than 5 ppm must be disposed of as hazardous waste.

A basewide remedial program was initiated in the mid-1980s to replace all electrical equipment that may contain PCBs, such as primary transformers and capacitors. This investigation did not include evaluating the potential release of PCBs that may have occurred. Comprehensive sampling and testing in 1995 determined that there was no PCB-containing OFEE in use at FISCO.

The following four pieces of OFEE at FISCO contain PCBs in the concentration range of 5 to 50 ppm: a circuit breaker at Building 310 with an eight ppm concentration, a second circuit breaker at Building 310 with a nine ppm concentration, a switch gear at Building 310 with a nine ppm concentration, and a transformer at Building 141 with an 11 ppm concentration (US Navy 1996h). A summary of sampling and analysis results for PCBs in OFEE is found in Appendix L, Table L-13 (US Navy 1996h).

As part of the IRP, sites IRP 04 and IRP 19 were investigated for potential PCB contamination and remedial actions have been implemented. No additional PCB investigations are planned for the remainder of FISCO. The Port will be responsible for identifying and disposing of any PCB-containing materials discovered at FISCO after base closure.

3.13.3.2 Non-Navy Property PCBs

A survey of PCB-equipment is not known to have been conducted on the Southern Pacific, Union Pacific, or Port properties. Based on the industrial usage of these properties, PCB-containing electrical equipment may be present on some of these properties.

3.13.3.3 Oakland Army Base PCBs

Several PCB surveys conducted at the Oakland Army Base have identified PCB-containing electrical equipment. The current status of the sampling, retrofilled, and replacement efforts at the base is unclear. There is insufficient information to determine if PCB-equipment is present on or adjacent to the project site. Additional information on the areas where PCBs have been identified is presented in Appendix L, Table L-16.

3.13.4 Underground Storage Tanks

Underground storage tanks (USTs) are subject to federal and state regulations. California regulations are more stringent than the federal regulations and require secondary containment on both tanks and piping systems installed after January 1, 1984.

3.13.4.1 FISCO USTs

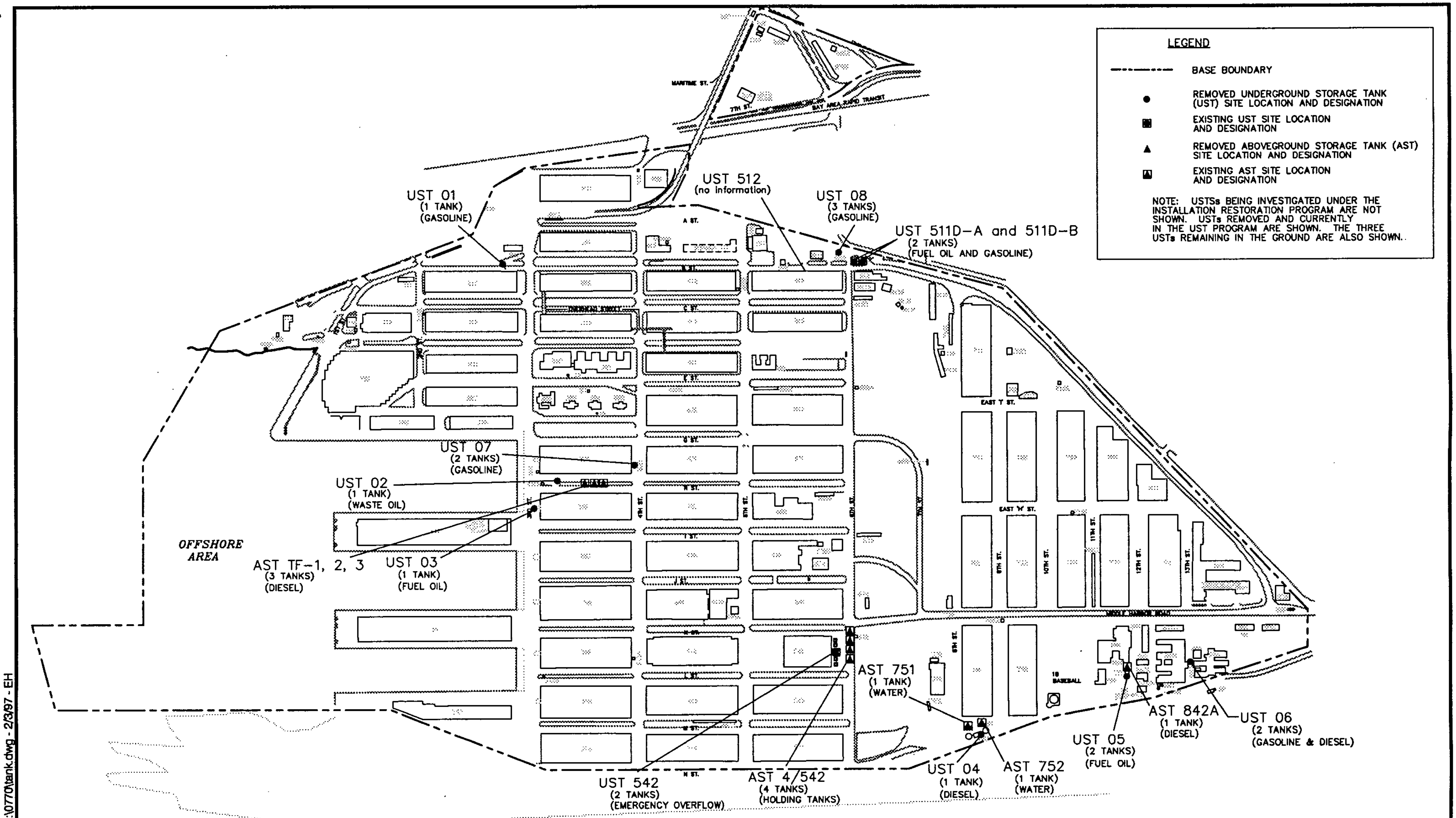
USTs have been used to store hazardous substances and petroleum products at locations throughout FISCO (Figure 3-21). Thirty-eight USTs have been identified at FISCO, 33 of which have been removed. Five USTs were removed in 1990, 17 USTs were removed in 1992, and 11 USTs were removed in 1994. Descriptions of the USTs that are known at FISCO are presented in Table 3-26.

Some degree of contamination was detected in the vicinity of all the petroleum or waste oil USTs that were removed from FISCO. Additional investigations for seven USTs removed from three sites are included as part of the IRP and will be addressed under IRP 02, IRP 13, and IRP 14 sites. The investigation of all UST sites not located at an IRP site are being addressed under the Navy UST program. The Navy has conducted a phase I remedial investigation/feasibility study for 19 USTs at 10 sites (Buildings 750, 842, 845, 211, 331E, 331S, 332, 511D, 331N, and 334). Quarterly monitoring is underway for 1997. One site, Building 833, with seven USTs is a NFA under the UST program since all seven USTs contained only water (US Navy 1996i). The presumed UST located near Building 845 has been investigated and was found not to be present. Two USTs near Building 542 are emergency holding tanks to be abandoned in place. Since the California State Water Resources Control Board recently proposed a draft petroleum policy (SWRCB 1996) regarding the cleanup of low-risk petroleum hydrocarbon sites that do not have PSH floating on the water table, the Navy and RWQCB will evaluate the applicability of these changes to FISCO. In general, there is no significant PSH at FISCO.

Five USTs remain at FISCO; one recently discovered UST near Building 512, two USTs at Building 511D, and two USTs at Building 542. The USTs near Building 511D are active and are part of a filling station for Navy vehicles. The two active USTs near Building 542 are not regulated since they are used for emergency overflows. These four USTs are not scheduled to be removed. However, the abandoned UST near Building 512 requires removal (US Navy 1996a).

3.13.4.2 Non-Navy Property USTs

No information was available on the number or locations of USTs located on the Port, Union Pacific, and Southern Pacific properties. Based on information contained in the phase I environmental site assessments, numerous USTs are known to have been located on these properties. Several USTs are known to have been removed on all of these properties.



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Two USTs used at the filling station and ASTs used to hold water or petroleum products will be transferred to the Port of Oakland.

Source: Navy 1996h

FISCO Tank Locations

Fleet & Industrial Supply Center Oakland
Port of Oakland

N

0 450 900
Approximate Scale in Feet

Port of Oakland

Figure 3-21

Table 3-26
FISCO Underground Storage Tanks

Tank Number	Parcel Number	IRP Remedial Area	Tank Contents	Tank Capacity (Gallons)	Tank Status	Recommended Action
211-1	211	None	Fuel Oil	18,000	Removed 1992	Quarterly ground water sampling
211-2	211	None	Fuel Oil	18,000	Removed 1992	Quarterly ground water sampling
211-3	211	None	Gasoline	3,000	Removed 1992	Quarterly ground water sampling
331-3E	331	None	Gasoline	5,000	Removed 1990	Ground water treatment
331-4E	331	None	Gasoline	5,000	Removed 1990	Ground water treatment
331 N	331	None	Waste oil	1,400	Removed	Ground water monitoring
331 S	331	None	Waste oil	1,400	Removed 1992	Ground water treatment
334 (331-W)	331	None	Unknown	Unknown	Removed	Additional wells and ground water monitoring
332	332	None	Fuel oil	6,800	Removed 1992	No action
411-1	411	1	Waste oil	1,100	Removed 1992	Undetermined
411-2	411	1	Waste oil	2,000	Removed 1992	Undetermined
511-1	511	1	Waste oil	1,500	Removed 1992	Undetermined
511F-I	511	1	Diesel	12,300	Removed 1992	Undetermined
511F-2	511	1	Diesel	12,300	Removed 1992	Undetermined
511F-3	511	1	Gasoline	2,300	Removed 1992	Undetermined
511D-1	511D	None	Gasoline	6,300	Removed 1990	Ground water treatment
511D-2	511D	1	Gasoline	2,000	Removed 1990	Ground water treatment
511D-3	511D	None	Gasoline	4,000	Removed 1990	Ground water treatment
511D-A	511 D	None	Gasoline	Unknown	Active	Continue required testing
511D-B	511 D	None	Fuel oil	Unknown	Active	Continue required testing
Unknown	512	None	Unknown	Unknown	Unknown	UST to be removed
Unknown	542	None	Emergency overflow	Unknown	Active	No Action
Unknown	542	None	Emergency overflow	Unknown	Active	No Action
740	740	2	Fuel oil	3,600	Removed 1992	Removal action
750-1	750	None	Diesel	Unknown	Unknown	Further soil and ground water testing to determine extent of contamination
750-2	750	None	Diesel	560	Removed 1992	Further soil and ground water testing to determine extent of contamination
842A-1	842	None	Fuel oil	12,900	Removed 1992	Ground water extraction and treatment
842A-2	842	None	Fuel oil	12,500	Removed 1992	Ground water extraction and treatment
845-1	841	None	Gasoline	4,500	Removed 1992	Quarterly ground water sampling
845-2	841	None	Diesel	6,000	Removed 1992	Quarterly ground water sampling

Source: US Navy 1996i
Notes: USTs that stored water are not included in this table.
Parcel numbers are as defined in the EBS and BRAC Closure Plans.

3.13.4.3 Oakland Army Base USTs

In 1986, 38 USTs were reported at the Oakland Army Base. Since that time, numerous USTs have been removed from the base. Some of the USTs removed were later replaced by new USTs. Currently, there are 14 active and one inactive USTs located at the base; the inactive UST is scheduled to be removed in 1997. The Army intends on reducing the total number of USTs to eight. Additional information on the locations and descriptions of the USTs is presented in Appendix L, Table L-20 (US Army 1996).

3.13.5 Aboveground Storage Tanks

Aboveground storage tanks (ASTs) are regulated under California Health and Safety Code, the Uniform Fire Code, and the National Fire Protection Association regulations. The spill prevention control and countermeasures plan for FISCO contains recommendations for secondary containment of ASTs. A program to properly label and placard all ASTs has been completed.

3.13.5.1 FISCO ASTs

Nine ASTs have been identified at FISCO and are used to store water or petroleum products (Figure 3-21). A list of ASTs located at FISCO and their status is provided in Table 3-27. The nine ASTs will be transferred to the Port as it continues to lease and reuse FISCO. The Navy will remove any residual petroleum products in the ASTs prior to Port occupation of the property.

Table 3-27
FISCO Aboveground Storage Tanks

Parcel Number	Tank Number	Tank Contents	Capacity (Gallons)	Tank Status	Action Status
331	TF-1	Diesel	50,000	Active	No Action
331	TF-2	Diesel	50,000	Active	No Action
331	TF-3	Diesel	53,000	Active	No Action
750	751	Water	320,000 to 340,000	Active	No Action
750	752	Empty	320,000 to 340,000	Inactive	No Action
542	NA	NA	50,000	Active	No Action
542	NA	NA	50,000	Active	No Action
542	NA	NA	50,000	Active	No Action
542	NA	NA	50,000	Active	No Action

Source: US Navy 1996i
Notes: NA = Tank number and contents not available.
Parcel Numbers are as defined in the EBS and BRAC Closure Plans.

3.13.5.2 Non-Navy Property ASTs

No information was available on the number or locations of ASTs currently located on the Port, Union Pacific, and Southern Pacific properties. Based on information contained in the phase I environmental site assessment, numerous ASTs are known to have been located on Union Pacific properties, and a few ASTs may have been located at Southern Pacific and the Don Gary Investments, Ltd., property.

3.13.5.3 Oakland Army Base ASTs

Five active ASTs identified at the Oakland Army Base are used to store petroleum products. One additional AST was formerly located at the base. A list of ASTs located at this base is provided in Appendix L, Table L-19.

3.13.6 Oil/Water Separators

Oil/water separators (OWSs) are designed to separate oil, fuel, and grease from water by gravity. However, other contaminants, such as solvents, which are potentially present in water discharged to an OWS, cannot be removed by the OWS process. Water from an OWS typically is discharged to an industrial or sanitary sewer for further treatment.

3.13.6.1 FISCO OWSs

Currently, FISCO has four active OWSs, located at Parcels 123, 141, 511, and Lot 121 (FISCO was divided into parcels for purposes of conducting the EBS environmental investigations and assigning environmental conditions of the property). The OWS at Parcel 511 may be a possible source of soil and ground water contamination in the area (US Navy 1996h).

3.13.6.2 Non-Navy Property OWSs

No information was available on the number or locations of OWS located on the Port, Union Pacific, or Southern Pacific properties. Based on information contained in the phase I environmental site assessment, several waste water impoundments formerly were located on the Southern Pacific property. Based on the industrial usage of the Port, Union Pacific, and Southern Pacific properties, it is likely that one or more OWSs are located on these properties.

3.13.6.3 Oakland Army Base OWSs

The Oakland Army Base is reported to have nine OWSs located on the base adjacent to the project site. The base has an environmental management plan and practices for maintaining the OWSs. Additional information on the OWSs located at the base is presented in Appendix L, Table L-18.

3.13.7 Pesticides

3.13.7.1 FISCO Pesticides

Routine small-scale pesticide and herbicide usage has been common at FISCO. No significant release of contaminants related to these activities has been identified, and these residual levels are not considered to be a threat to human health or the environment. However, several compounds have been identified as target contaminants at Parcel 111 as a result of IRP program investigations (US Navy 1996h).

3.13.7.2 Non-Navy Property Pesticides

No information was available on pesticide usage on the Port, Union Pacific, or Southern Pacific properties. However, routine small-scale pesticide and herbicide

usage for weed and rodent control is likely to have taken place on all of these properties.

3.13.7.3 Oakland Army Base Pesticides

No information was readily available on pesticide usage at Oakland Army Base. However, routine small-scale pesticide and herbicide usage for weed and rodent control is likely to have taken place.

3.13.8 Lead

Lead is a naturally occurring element that typically can be detected in most soils. Lead has been used in many military, industrial, and consumer goods, such as batteries, paints, radiological shielding, and ordnance.

Since water supplied through a municipal source is required to be free of harmful contaminants, lead contamination of the drinking water generally occurs from the water distribution system (e.g., lead pipes) rather than from the water source. In some cases, old pumping systems installed using lead-containing solder or brass fixtures may release lead as they corrode.

3.13.8.1 FISCO Lead

Generally, lead-based paint survey data are not available for most of FISCO. Lead-based paint surveys have been conducted by the Port on buildings that have been or are scheduled to be demolished. The Navy has conducted lead-based paint surveys on some of the structures at FISCO that have extensive human contact.

PWC conducted a lead-based paint survey in 1996 on the three structures that comprise the Navy officers quarters (Quarters A, B, and C) at FISCO. Based on the results of the survey, lead-based paint was found on the interior and exterior surfaces throughout the three officers quarters. Quarters A had lead levels in dust above the recommended limit for window sills. Quarters C was the only unit with lead contamination in soil at the foundation lines above 400 parts per million (ppm) (US Navy 1996b; US Navy 1996c).

An additional lead-based paint survey was conducted at Building 844 to evaluate its suitability as a day care center. Based on the results of this survey, lead concentrations exceeded the Consumer Product Safety Council's lead-based paint criteria of 0.06 percent lead in 10 out of the 11 samples collected (US Navy 1996b; US Navy 1996g). Since most of the buildings at FISCO were constructed prior to 1978, it is likely that these buildings have surfaces painted with lead-containing paints. The Port will be responsible for further characterization, if deemed necessary, and proper abatement of lead-based paints. The Port would perform the removals in accordance with all applicable local, state, and federal regulations.

A drinking water study identified several sites that contained copper or lead above the federal regulatory levels (US Navy 1996i). Identification of these

potential copper and lead sources prompted FISCO to turn off or retest certain areas to ensure they were safe. The Navy took action to remove sources of lead contaminants in the drinking water at FISCO (US Navy 1996a). The Port will assume drinking water monitoring responsibilities as it takes over leasing the entire base (US Navy 1996i).

3.13.8.2 Non-Navy Property Lead

With the exception of FISCO property leased to the Port, no lead-based paint surveys are known to have been conducted on the Port or railroad-owned properties. Lead-based paints are likely to be present on the painted surfaces of some structures located on these properties based on the structures' age. In addition, industrial removal of paints may have occurred on several of the properties where maintenance activities are known to have taken place. Similarly, no drinking water studies are known to have been conducted at these properties.

3.13.8.3 Oakland Army Base Lead

Lead-based paint surveys have been conducted at Oakland Army Base. These surveys mainly have been limited to investigating the recreational areas and living quarters. Lead-based paint was identified on the interior and exterior surfaces of the Capehart housing units, the EM Quarters housing units, and on some of the playground equipment. Lead contamination was not detected in soil in the recreational areas (US Army 1996). No lead surveys were done on that portion of the base proposed for inclusion in the project site. No drinking water studies are known to have been conducted at the base.

3.13.9 Radiological Facilities

Radiological buildings, facilities, and areas have been categorized according to their contamination potential. This categorization is based on the past and present use of the areas, review of past radiological surveys, operating records, and interviews with employees.

3.13.9.1 FISCO Radiological Facilities

The storage and staging of radiological materials for shipment was conducted at FISCO. No other current or historical activities or operations involving radioactive materials are known to have been conducted at this base. A summary of parcels at FISCO where storage or staging of radiological materials has occurred or is suspected to have occurred is presented in Appendix L, Table L-14 (US Navy 1996h).

Several FISCO buildings are undergoing radiological close-out surveys. These surveys are intended to determine if any releases of radioactive contamination to the environment occurred as a result of storage or staging of materials for shipment. Radiological close-out surveys have not been completed at several FISCO buildings. Completion of the surveys, and findings of acceptable conditions, will be conducted prior to property transfer.

3.13.9.2 Non-Navy Property Radiological Facilities

No operations involving radioactive materials are known to have taken place on the Port, Union Pacific, or Southern Pacific properties. However, there is a possibility that low level radioactive materials may have been occasionally transported through some of the shipping facilities and railroad properties. However, no long-term storage of radioactive wastes is likely to have occurred on these properties.

3.13.9.3 Oakland Army Base Radiological Facilities

The storage and staging of radiological materials for shipment has been conducted at the Oakland Army Base. No other current or historical activities or operations involving radioactive materials are known to have been conducted at this base and it does not have any Nuclear Regulatory Commission facilities (US Army 1996).

3.13.10 Medical and Biohazardous Waste

Medical and biological waste are typically generated by medical facilities and biological research facilities and require special disposal procedures.

3.13.10.1 FISCO Medical and Biohazardous Waste

Medical and biohazardous wastes have been generated at FISCO as a result of biological research, medical clinic operations, and dental clinic operations. Evidence of on-site release or disposal of such wastes has not been identified. The areas at FISCO where medical or biohazardous wastes were likely to be generated are Parcels 841, 842, 844, 845, and 322 (US Navy 1996h). The medical and dental clinics at FISCO have been closed for a number of years, and no medical wastes are being generated, stored, or disposed of at FISCO.

3.13.10.2 Non-Navy Property Medical and Biohazardous Waste

Medical and biohazardous wastes are not reported to have been generated on the Port, Union Pacific, and Southern Pacific properties. However, there is a possibility that such wastes may have been occasionally transported through the railroads and properties used for freight operations. No long-term storage of these wastes is likely to have occurred on these properties.

3.13.10.3 Oakland Army Base Medical and Biohazardous Waste

Medical and biohazardous wastes have been generated at Oakland Army Base. Approximately 20 pounds of biohazardous medical wastes were generated at the base each month during the operation of the Oakland Army Base Dispensary. These wastes were removed from the site and no evidence of on-site release or disposal has been identified. The dispensary was closed in July 1996 (US Army 1996).

3.13.11 Ordnance

Ordnance generally refers to the ammunition projectiles, explosives, incendiaries, illuminates, and smoke generators. Typical types of ordnance include cartridges, missiles, bombs, mortars, grenades, flares, or mines.

3.13.11.1 FISCO Ordnance

At FISCO, ordnance uses largely have been limited to small arms ammunition and bomb disposal unit supplies. Ordnance-related activities at FISCO have included storage of material for use at FISCO (e.g., bomb disposal unit supplies) and staging or shipping and receiving operations. A summary of ordnance-related activities at FISCO is provided in Appendix L, Table L-15 (US Navy 1996h).

3.13.11.2 Non-Navy Property Ordnance

No information on the use or storage of ordnance is known to exist for the Port, Union Pacific, or Southern Pacific properties. However, based on the nature of the property use, small arms ammunition is likely to have been transported occasionally through the railroad yard properties. It is not likely that ordnance was stored or used on these properties on any regular basis, and long-term storage of ordnance is not likely to have taken place.

3.13.11.3 Oakland Army Base Ordnance

There is no evidence of the storage of unexploded ordnance at the Oakland Army Base. However, according to interviews, ordnance for small arms has been transported through the property (US Army 1996). No unexploded ordnance surveys have been conducted at the base.

3.13.12 Radon

Radon is a colorless and odorless naturally occurring radioactive gas that is produced by radioactive decay of naturally occurring uranium to radium. Radium, of which radon gas is a by-product, is found in high concentration in rocks containing uranium, granite, shale, phosphate, and pitchblende. Atmospheric radon is diluted to insignificant concentrations. However, radon that is present in soil, can enter a building through small spaces and openings, accumulating in enclosed areas, such as basements. The cancer risk caused by exposure through the inhalation of radon is currently a topic of research.

3.13.12.1 FISCO Radon

As part of indoor radon abatement provisions, the head of each federal department or agency that owns a federal building is required to conduct a radon survey to determine the extent of radon levels in the structure. Based on the results of a comprehensive radon screening at FISCO, no radon levels were detected above the EPA action level (US Navy 1996i).

3.13.12.2 Non-Navy Property Radon

No radon surveys are known to have been conducted on the Port, Union Pacific, or Southern Pacific properties.

3.13.12.3 Oakland Army Base Radon

A radon survey was conducted at the Oakland Army Base in 1989. Based on the results, no radon levels were detected above the EPA action level in any of the structures tested (US Army 1996).

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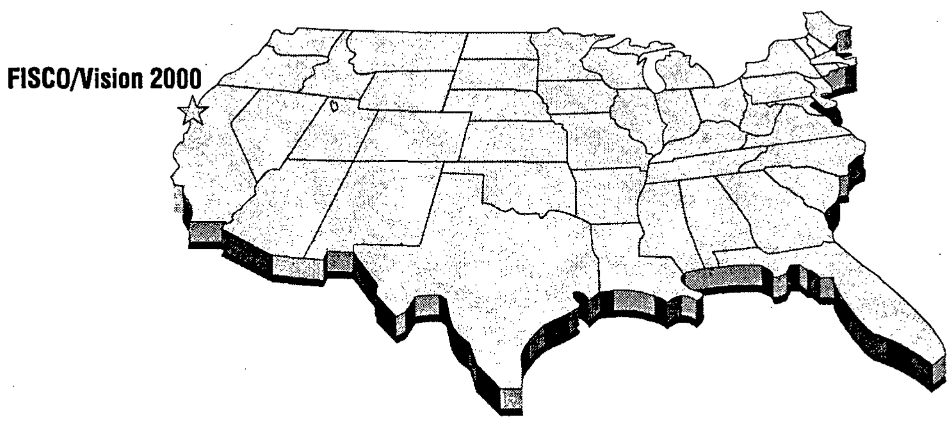


4.0 ENVIRONMENTAL CONSEQUENCES OF NAVY ACTIONS

CHAPTER 4
ENVIRONMENTAL CONSEQUENCES OF NAVY ACTIONS

This chapter describes the potential direct environmental consequences associated with the Navy No Action Alternative and with Navy disposal of nonreversionary Navy property. For purposes of the Navy NEPA analysis, indirect impacts are those associated with Port reuse of nonreversionary Navy property, and cumulative environmental impacts are associated with the Port's reuse of reversionary Navy property and non-Navy property needed for the Vision 2000 Program (see Chapter 5). Impacts are described at a relatively general level of detail. Impacts for the 13 resource areas described in Section 3 are presented under each alternative. The resource area discussions begin with an introduction that includes planning issues for the resource area and its region of influence (ROI). An ROI is a geographic area in which impact for a particular resource would likely occur. The ROI for a resource having regional impacts would be different than the ROI for a resource with localized impacts. Where appropriate, analysis methodology and assumptions also are described.

The introduction is followed by the criteria used to determine whether an impact would be significant or not. In addition, where beneficial impacts are identified, the nature of the beneficial impact is discussed in the text of the document. Significant impacts and mitigation measures are numbered; not significant impacts, including those that are beneficial, are listed separately from the significant impacts and are not numbered. Unavoidable impacts that cannot be mitigated to a less than significant level also are identified.

Mitigation measures are identified for any impact determined to be significant and are meant to reduce environmental impacts. The Navy would not be responsible for implementing or funding any mitigation measures related to the Vision 2000 Program.

Table 4-1
Summary of Impacts and Significance for Navy Actions

IMPACT ISSUES	No Action Alternative	Navy Disposal
LAND USE		
Land use change and land use pattern reconfiguration	⦶	○
Construction and demolition	⦶	○
SOCIOECONOMICS		
Employment and income	○	○
Population, housing, and schools	○	○
PUBLIC SERVICES		
Increased emergency response times and demand for fire services	⦶	○
Police services	⦶	○
Emergency medical services	⦶	○
CULTURAL RESOURCES		
Demolition of historic buildings and structures in the NSCO Historic District	◑	◑
Prehistoric, Native American, and historic archeological resources	○	○
VISUAL RESOURCES		
Off-site views from Alameda Shoreline	⦶	○
Views from Port View Park	⦶	○
BIOLOGICAL RESOURCES		
Impacts to biological resources	⦶	○
WATER RESOURCES		
Pollutants in runoff and adjacent waters	⦶	○
Impacts to other water resources	⦶	○
GEOLOGY AND SOILS		
Public exposure to earthquakes and damage to structures and utilities	⦶	○
Damage to shoreline slopes and structures from liquefaction	⦶	○
Settlement	⦶	○
Differential settlement	⦶	○
Soil erosion/soil loss	⦶	○
Lateral spreading	⦶	○
TRAFFIC AND CIRCULATION		
Peak hour traffic at local intersections and freeways and railroad/highway crossings	○	○
Parking and transit service	○	○
Bicycle and pedestrian system impacts	○	○
Consistency with transportation plans and regulations	○	○
Neighborhood impacts	○	○

Table 4-1 *(continued)*
Summary of Impacts and Significance for Navy Actions

IMPACT ISSUES	No Action Alternative	Navy Disposal
AIR QUALITY		
Construction and demolition	◑	○
Federal Clean Air Act conformity	○	○
Carbon monoxide concentrations from area traffic and traffic-related ozone precursor emissions	○	○
Asbestos and lead particles from demolition activities	○	○
Land use compatibility conflicts	○	○
NOISE		
Construction and demolition	⦶	○
Noise/land use compatibility conflicts	○	○
Noise generated by vehicle and train traffic	○	○
Noise generated by railyard and marine terminal operations	○	○
UTILITIES		
Impacts to utilities	⦶	○
HAZARDOUS MATERIALS AND WASTE		
Hazardous materials and waste impacts	○	○

LEGEND:

Level of Impact
● = Significant and not mitigable
◑ = Significant and mitigable
⦶ = Not significant
○ = None

The impacts shown in Table 4-1 are associated with Navy actions and are applicable only to the FISCO site. The list of impacts associated with Port reuse alternatives is presented in Chapter 5.

4.1 NO ACTION ALTERNATIVE

The No Action Alternative is defined as FISCO being closed, as mandated by law. Under the No Action Alternative, the Navy would retain ownership of 136 acres of nonreversionary Navy property in a caretaker status after closure. However, the 392 acres of reversionary Navy property would revert to the Port, and the Port would continue to lease the 136 acres of nonreversionary Navy property under existing lease agreements. The No Action Alternative assumes all of FISCO will be leased to the Port prior to completing the Final EIS/EIR for this project.

4.1.1 Land Use

The ROI for land use is the project site and surrounding lands within at least one-half mile of the site. The ROI boundary is defined to the north and west by San Francisco Bay, to the south by Naval Air Station (NAS) Alameda, and to the east by West Grand Avenue, I-980, and the Howard Terminal, a marine terminal that is part of Port operations in the Oakland Inner Harbor. This ROI was identified because impacts to land uses should be considered in light of their consistency with existing uses and congruity with adjacent uses, such as those in San Francisco Bay and West Oakland.

Land use impacts are evaluated against 1996 conditions under the assumption that the entire FISCO site is active under a Navy lease to the Port. Demolition and construction impacts also are considered when evaluating the potential land use impacts of this action.

4.1.1.1 Significance Criteria

Land use impacts occur through changes to land uses, construction of new buildings, and infrastructure and demolition activities. A project could cause a significant impact on land use if implementation conflicts with established residential, recreational, educational, or scientific uses in the project site, if it would disrupt or divide the established land use configurations, or if it would result in a substantial alteration of the present or planned land use.

4.1.1.2 Not Significant Impacts

Land Use Change and Land Use Pattern Reconfiguration. The No Action Alternative would result in no significant land use impacts because the land is being leased and occupied by the Port, and any future land uses would be similar and compatible with existing land uses.

Construction and Demolition. Under the No Action Alternative, any construction or demolition activities undertaken by the Port on FISCO would produce temporary but not significant land use impacts because FISCO is surrounded by other industrial and heavy-commercial uses, such as the Union Pacific Intermodal and Southern Pacific Railyards.

4.1.2 Socioeconomics

This analysis addresses socioeconomic impacts on employment, income, population, housing, and schools. Environmental justice issues are addressed in detail in Chapter 6. The ROI for socioeconomic impacts varies, depending on the type of impact being analyzed. For population, income, employment, housing, and schools, this EIS/EIR addresses impacts for the counties of Alameda, Contra Costa, and San Francisco. This three-county region was selected because an estimated 80 percent of all persons directly employed through the Port of Oakland's maritime activities resided in these counties in 1990 (Port of Oakland 1990). Environmental justice impacts, described in Chapter 6, are examined only for the West Oakland community because this area would have the greatest

exposure to any direct environmental impacts that result from implementation of any of the project alternatives.

4.1.2.1 Significance Criteria

The significance of socioeconomic impacts is related to the social and economic characteristics of the region at the time when impacts would occur. The generation of jobs and income generally are considered to be beneficial impacts in the affected region. The more jobs and income generated, the more beneficial the impact.

Population levels and housing and school demand can change in response to changes in employment and income within a region, although in a region as large and complex as the San Francisco Bay Area, such changes that would result from one particular project or action are often impossible to predict or measure. Because changes in population and housing and school demand can be perceived either positively or negatively, depending upon the values and point of view of the affected community, they are not described as either adverse or beneficial impacts of disposal and reuse actions.

4.1.2.2 No Impacts

Employment and Income. Under the No Action Alternative, no new rail or marine terminal facilities would be built on the project site, and there would be no loss of Navy jobs because the Port would already have leased all of FISCO. Therefore, the No Action Alternative would have no direct impact on local or regional employment and income. Future cumulative effects without the project on employment and income both locally and in the region are described in Chapter 5 and Chapter 6.

Population, Housing, and Schools. Because the No Action Alternative would result in no change in regional employment, it would have no impact on regional population, housing, or schools.

4.1.3 Public Services

This section analyzes impacts to public services, including police, fire, and emergency medical services. The city limits of Oakland were chosen as the ROI because city public service agencies currently provide service to the Vision 2000 project site.

4.1.3.1 Significance Criteria

A project may have a significant impact on public services if it would result in hazardous conditions, in emergency response times exceeding city goals, in a need for additional facilities, or in substantially increased staffing levels.

4.1.3.2 Not Significant Impacts

Increased Emergency Response Times and Demand for Fire Services. No significant impacts to fire services are expected with the Navy retaining ownership of

nonreversionary Navy property in the short term because the Navy is expected to maintain current levels of fire services at least until closure of FISCO (in September of 1998) or until lease or reversion of the property to the Port, unless other arrangements are made between the Port and Navy.

Once the remainder of FISCO is leased or reverts to the Port, the City of Oakland would be responsible for providing fire services to these areas. The Oakland Fire Department has determined that extending fire protection to the portions of FISCO not currently leased by the Port potentially would increase response times to emergency calls from FISCO beyond the three to five minute range that the fire department currently maintains. Providing fire services to these portions of FISCO would require staffing additional firefighters and relocating equipment closer to the project site. Implementing this alternative would require the fire department to staff the FISCO fire station with one engine company, which consists of four firefighters and one fire engine (Speakman, J., July 11, 1996, personal communication).

The Port will be required to enter into an agreement with the city, similar to an existing memorandum of understanding (MOU) concerning fire services on portions of FISCO already leased to the Port, to pay for these additional fire services. Therefore, additional fire protection needs will not have a significant impact because the existing FISCO firehouse will not be demolished.

Police Services. Impacts to police services resulting from this alternative would not be significant because the project would not result in hazardous conditions, in the need for additional police facilities, or in demand for increased staffing levels. Although this alternative would result in increased demand for police services at FISCO, the impact is not significant because the City of Oakland Police Department has determined that, based on the proposed development, the increased demand could be met by the current level of service and would not require additional police personnel or resources (Simms, M., November 6, 1996, personal communication).

Emergency Medical Services. Impacts to emergency ambulance services resulting from this alternative would not be significant because the project would not result in hazardous conditions, in the need for additional ambulance facilities, in medical emergency response times exceeding current levels, or in demand for increased staffing levels. Although this alternative would result in increased demand for ambulance services at FISCO, the impact is not significant because the Alameda County Emergency Services District has determined that, based on the proposed development, the increased demand could be met by the current level of service and would not require additional ambulance units (Akers, D., June 7, 1996, personal communication). Although the Spectrum Medical Care clinic would not causally be effected by the No Action Alternative, the clinic is a tenant of the Southern Pacific Railroad and is operated under a month-to-month lease; therefore, its relocation could be required at any time.

4.1.4 Cultural Resources

This section analyzes impacts to cultural resources at the FISCO site, including architectural, prehistoric, Native American, and historic archeological resources, as a result of the No Action Alternative. The ROI for cultural resources is the entire project site because only cultural resources within the boundaries of the project site potentially would be affected by project activities. Impacts on cultural resources located on nonreversionary Navy property and reversionary Navy property are identified where feasible and appropriate.

The No Action Alternative would demolish certain buildings on FISCO. It is assumed that periodic maintenance would be carried out to limit deterioration of the remaining structures, including maintenance of facilities.

4.1.4.1 Significance Criteria

Pursuant to the regulations implementing Section 106 of the National Historic Preservation Act (NHPA), the Navy is the lead federal agency for the disposal of Navy facilities at FISCO slated for base closure. These regulations (36 CFR Part 800) state that a federal action has an effect on historic property when it alters those characteristics of the property that qualify it for inclusion in the National Register of Historic Places (NRHP). An action is considered to have an adverse effect on a historic property when it diminishes the integrity of the property's location, design, setting, materials, workmanship, feeling, or association. Historic resources that have been determined not eligible for listing in the National Register could be adversely affected but, as they are not considered significant, the impact is of no consequence for this analysis. Adverse effects on historic properties include, but are not limited to, the following:

- Physical destruction, damage, or alteration of all or part of the property;
- Isolation of the property or alteration of the character of the property's setting when that character contributes to the property's qualifications for NRHP;
- Introduction of visual, audible, or atmospheric elements that are out of character with the property or changes that may alter its setting;
- Neglect of a property resulting in its deterioration or destruction; and
- Transfer, lease, or sale of a property without adequate provisions to protect its historic integrity.

Consultation among the Navy, Advisory Council on Historic Preservation (ACHP), Port, and State Historic Preservation Officer (SHPO) to comply with Section 106 of NHPA must be concluded prior to the completion of the Final EIS/EIR for this project. This consultation will address the adverse effects to

National Register or eligible properties within the area of potential effect and will attempt to reach agreement on appropriate mitigation. Cultural resources that do not qualify for inclusion in the National Register, including properties of state, local, and national significance, also may be impacted adversely by the proposed undertaking. However, because the properties do not meet the minimum qualifications for inclusion in the National Register, the impact to such properties is not taken into account in the NEPA process.

4.1.4.2 Significant Impacts

Impact 1: Demolition of Historic Buildings and Structures in the Naval Supply Center, Oakland Historic District. Under this alternative, the Navy would not dispose of the nonreversionary Navy property. However, the Port would proceed with leasing all of FISCO, including both reversionary and nonreversionary Navy property.

Under the No Action Alternative, the Port may demolish all or nearly all contributing buildings within the Naval Supply Center, Oakland Historic District. This demolition will complete a program that began in 1994, through which much of the Naval Supply Center, Oakland Historic District would be demolished to make way for expansion of the Port facilities.

In 1994, the Navy, the Port, the SHPO, and the ACHP executed a Memorandum of Agreement (MOA) pertaining to leasing up to approximately 220 acres of the 528-acre FISCO to the Port. The MOA accepted demolition of any buildings within 190 of the 220-acre existing lease area, which concerned both reversionary and nonreversionary Navy property. This adverse effect was accepted because the Navy planned to retain original older parts of the base that contained the permanent structures, as well as a representative sample of the temporary warehouses built during the war in a tight cohesive district.

The MOA called for mitigation measures, including recordation of selected buildings to the standards of Historic American Building Survey (HABS), preparation of a Historic Archeological Resource Protection Plan (HARP) for the remainder of the base, and other mitigation measures. Some of these measures were implemented, including HABS recordation of all contributing buildings, including areas not covered by the lease (Wall, L., July 15, 1996, personal communication). The demolition accepted under the 1994 MOA will effectively destroy much of the Naval Supply Center, Oakland Historic District, resulting in demolition of 39 of the 84 contributing buildings.

The No Action Alternative would result in an adverse effect and a substantial adverse change to this historic property that could be mitigated for the purposes of NEPA.

Mitigation 1. The mitigation presented below for this significant impact to cultural resources represents a range of options available to the Port that may be

selected to reduce this impact to a level that is not significant. These measures may be revised or additional measures may be formulated as mitigation during the next tier of environmental review.

The Navy has initiated consultation with the SHPO and the ACHP to amend the terms of the 1994 MOA for leasing all of FISCO to the Port. The revised memorandum of agreement (MOA) need only be signed by the Navy and the Council to be valid and satisfy Section 106. The Port has met with the Oakland Landmarks Preservation Advisory Board to revise the mitigation measures that will take into account the larger areas of impacts associated with the Navy leasing all of FISCO. This consultation will consider the position of interested parties. The Oakland Landmarks Preservation Advisory Board, Navy, and Port have agreed to the following measures to include in a revised MOA:

- The Port shall continue to provide publicized tours, led by docents and in coordination with the Navy, as long as practicable and safe for public access to FISCO. Publicity for tours will be disseminated as widely as possible, including press releases to local media, announcements on KTOP (City of Oakland channel) and other public access stations, and coordinated publicity with the Oakland Tours Program and Oakland Heritage Alliance;

- The Port shall continue to demolish FISCO structures in phases;

- The Port shall develop, publicize, and disseminate a documentary video to preserve the history and significance of FISCO. As part of the production, the Port shall implement a one-time distribution and outreach program, which will include producing, packaging, and distributing tapes and viewer guides and a professional good faith effort to pursue television or nontheatrical distribution of the video;

- The Port shall prepare a movable exhibit commemorating FISCO and its place in Oakland history. The Port also shall provide prominent dedicated exhibition space at the Oakland Airport, as part of a program with the collaboration of and consultation with the Oakland Museum. The exhibit at the airport will provide space for revolving exhibits related to Oakland's cultural history. The Port also shall work with the museum and other agencies to present the FISCO exhibit at other appropriate locations on an ongoing basis;

- The Port shall include in the design and development of the public access areas at FISCO a structure, land form, or landscaping feature that captures in true scale the enormity of the facilities and activities required for FISCO's historic function. The Port shall share design concepts and shall consult with the Oakland Public Art Advisory Commissions, the Oakland Landmarks Board, Oakland Heritage Alliance, ProArts, and the West Oakland community prior to final design;

- The Port shall prepare and submit an application to the State Historic Resources Commission to designate FISCO as a State Historical Point of Interest and to incorporate a recognition of this designation into the public access area; and

- The Port shall allow the three officers quarters buildings to be moved off-site and reused by nonprofit or other community-based organizations at no charge for a period not to exceed three months prior to demolishing the buildings.

The Port and the Oakland Landmarks Preservation Advisory Board reached agreement on these measures in early December 1996 (see Appendix G). The Navy will prepare recommendations to other parties to the agreement for amending the MOA. The amended MOA will be included in the Final EIS/EIR for this undertaking.

For the NEPA evaluation, implementing the stipulations in the amended MOA, Mitigation 1, would reduce this impact to a level that is not significant.

4.1.4.3 No Impacts

Prehistoric, Native American, and Historic Archeological Resources. Implementation of the No Action Alternative would have no impact on prehistoric, Native American, or historic archeological resources listed in or eligible for listing in the NRHP.

4.1.5 Visual Resources

The ROI for visual resources includes a generalized viewshed extending out to a maximum of five miles but is limited in places by terrain and structures, for example Yerba Buena Island and the Oakland Bay Bridge to the north, the I-580 and I-980 freeways to the east, and downtown Oakland to the southeast. The ROI extends farthest to the west and south towards the southern San Francisco waterfront, Hunters Point, and northern Alameda. The No Action Alternative would result in no major change in appearance of the area. The overall visual quality of the FISCO site would be retained.

4.1.5.1 Significance Criteria

Visual resources were qualitatively evaluated by assessing the nature and extent of change in existing landscape character. The analysis addresses landscape modifications as seen from viewpoints within the ROI. An impact is considered significant if any of the following occurs:

- It would noticeably increase visual contrast and substantially reduce scenic quality, as seen from any high sensitivity foreground or middleground viewpoint;

- It would block or disrupt existing views or reduce public opportunities to view scenic resources; or

- Visual resource conditions would conflict with policies and regulations governing aesthetics.

Impacts can be either adverse, by degrading scenic qualities, or beneficial, by enhancing scenic qualities. Temporary visual effects that last three years or less, such as construction effects, are not considered to be significant.

4.1.5.2 Not Significant Impacts

Off-site Views from Alameda Shoreline. Removal of cranes and vessels from the Oakland Middle Harbor would reduce visual variety in views from existing public access points along the Alameda shore of the Oakland Inner Harbor. However, the loss of these visual elements would not be considered a significant impact given the existing industrial context of the surrounding Port terminals along the Oakland Outer, Middle, and Inner Harbors.

Views from Port View Park. Removal of cranes and vessels from the Oakland Middle Harbor also would reduce visual variety in views from Port View Park. However, the loss of these visual elements would not be considered a significant impact given the existing industrial context of the surroundings.

4.1.6 Biological Resources

The ROI for biological resource impacts includes the project site, adjacent waterways, and areas within a half-mile of the edge of the site. These off-site resources may indicate the potential for sensitive species and habitats on the site. All impacts are analyzed against conditions existing at the site in 1996.

4.1.6.1 Significance Criteria

Significance criteria used to evaluate impacts to biological resources are derived from legal requirements to protect sensitive species and habitats and from the extent to which that resource elicits concern among natural resource management agencies or scientific authorities.

Determination of significant impacts to biological resources includes both direct and indirect impacts. Direct impacts are those in which activities reduce or remove a biological resource, such as the results of construction or grading, while indirect impacts could occur when the activity causes other actions that affect biological resources. Impacts can be short-term or long-term.

Special Status Species

Impacts to special status species are considered significant if the action results in one or more of the following:

- Harm to, harassment of, or destruction or loss of any endangered or threatened or rare species under federal or California law;

- Modification or destruction of the above species' habitats, migration corridors, or breeding areas; or

- Loss of a substantial number of any plant or animal species that could affect abundance or diversity of a rare, threatened, or endangered species beyond normal variability.

Impacts to unlisted species can be significant if the survival and reproduction of the species is in immediate jeopardy or if environmental decline could cause its low numbers to drop to endangered or threatened levels. Otherwise, impacts on nonsensitive species (i.e., candidate species with no other protection, California species of special concern, or California Native Plant Society listed species), would be considered adverse but not significant.

Sensitive Habitats

Significant impacts could result from the measurable degradation of sensitive habitats, habitats that support species listed or proposed for listing under the federal or state Endangered Species Acts, and habitats in which diverse and productive natural communities are established. The eelgrass beds in waters adjacent to the project site belong to the latter category because of their potential for providing habitats for invertebrates and foraging, spawning, and nursery substrates for fish species.

Nonsensitive Species and Habitats

Populations of plants and animals and the diversity of species within communities fluctuate naturally. Impacts to nonsensitive vegetation, communities, and wildlife species at the site would not be considered significant unless an action could substantially disturb an ecosystem beyond normal variability or if the habitat is protected by federal, state, or local laws. Much of the project site is intensively developed and does not support significant biological resources. These areas are currently urbanized, and future use will probably continue this pattern.

4.1.6.2 Not Significant Impacts

Impacts to Biological Resources. FISCO is an intensely developed property that consists primarily of railroad beds, roads, buildings, and parking lots that have little vegetation or wildlife habitat. Under the No Action Alternative, no significant impact would occur to the existing biological resources. Implementation of the No Action Alternative would preclude development of the Middle Harbor marine habitat enhancement area proposed as part of the Vision 2000 Program. However, this would be considered a not significant impact because it is not an existing use.

4.1.7 Water Resources

Water-related issues include stormwater runoff, surface water and ground water quality, and flooding potential. The ROI for water resources includes the project site and Oakland Outer Harbor, Middle Harbor, and Inner Harbor, associated channels, and the east-central area of San Francisco Bay. This area was selected because its quantity and quality of surface water, runoff, and ground water potentially could be significantly affected by elements of the project or, conversely, its water resources could pose a hazard, such as flooding, to subsequent uses. All impacts are analyzed against conditions existing at the project site in 1996.

4.1.7.1 Significance Criteria

A project may have a significant impact on water resources if it causes substantial flooding or erosion, if it adversely affects any significant water body, such as a stream, lake, or bay, if it exposes people to reasonably foreseeable hydrologic hazards, such as flooding or tsunamis, or if it adversely affects surface or ground water quality or quantity. The 100-year recurrence interval for floodplains, tsunami runup, and tidal flood hazards is used as the significance criteria for those aspects of this study. Significance of water quality impacts is based on the potential for long-term effects to aquatic resources.

4.1.7.2 Not Significant Impacts

Pollutants in Runoff and Adjacent Waters. Expansion of the Harbor Transportation Center on FISCO could result in increases in already high levels of contaminants in stormwater runoff from that area. This, in turn, could contribute to cumulative loadings of stormwater contaminants in Central Bay receiving waters. As part of the lease for the remainder of FISCO, the Port's stormwater management program will be expanded to include compliance with the stormwater management plan and the Port's best management practices (BMPs) (see Appendix I). The Port, in conjunction with the Regional Water Quality Control Board, will assist tenants with design of appropriate industrial stormwater drainage/treatment facilities and operations that incorporate BMPs that would reduce stormwater pollutant loads. Therefore, potential pollutant increases in stormwater runoff is considered a not significant impact.

Impacts to Other Water Resources. The No Action Alternative would not affect quantities of runoff from the site, dredging and filling-related water quality issues, or exacerbate existing flood hazards. Ponding could continue to be an intermittent problem on the site; however, this would be kept below a significant level by continued maintenance of drainage facilities. Tsunamis and other flood hazards could affect the site in this alternative, however, due to the low likelihood of these occurrences, this impact is considered not significant.

4.1.8 Geology and Soils

The ROI for soils and geologic resources includes lands within the boundaries of the project site, adjacent contiguous land and waterways, the underlying geologic

formations, and regional faults. Regional geologic features are discussed to provide a context for the discussion of geology at the project site because some geologic conditions and processes (such as movement along faults) may occur outside the FISCO/Vision 2000 project site boundaries but may impact the site.

4.1.8.1 Significance Criteria

A significant geologic impact may result if an action is likely to result in reduced access to or loss of geologic resources or if it is likely to expose people or property to severe damage or injuries from geologic hazards. Geologic resources may include mineral deposits, fertile soils, or landforms with unique aesthetic or scientific value. Geologic hazards may include slope failure, erosion or sedimentation, subsidence, settlement, or liquefaction.

For CEQA purposes only, an additional significance criterion is identified. Under the CEQA guidelines, a project that exposes people or structures to a major geologic hazard, such as an active earthquake fault, is considered a significant impact. No physical change to the environment is required for this environmental impact to be considered significant under CEQA.

4.1.8.2 Not Significant Impacts

Public Exposure to Earthquakes and Damage to Structures and Utilities. Under the No Action Alternative, the FISCO property would be managed by the Port of Oakland. The Port would evaluate, upgrade, and maintain existing facilities in a condition that meets all existing applicable seismic safety standards. Those facilities that cannot be upgraded or maintained would remain unoccupied and would be demolished. Furthermore, potential for injuries or loss of life would be minimal because the number of users at the site would be substantially less than historic levels when FISCO was fully operational (i.e., 1990-1991). Therefore, no significant impacts are expected.

Damage to Shoreline Slopes and Structures from Liquefaction. Liquefaction is likely to occur locally throughout the project site in a major earthquake because the area is underlain by a shallow water table and loose sandy fill sediments. Liquefaction of placed materials or of the underlying Merritt/Posey Sand could contribute to failure of portions of perimeter dikes or to structures supported on or behind the perimeter dikes and obstruction of the navigational channel. Ground failure could result in damage to foundations of structures, collapse of roads and railroad track beds, and breaks in utility lines. The Port is performing geotechnical studies that may provide information pertinent to the liquefaction potential in critical areas of FISCO. Using this information, the Port will evaluate, upgrade and maintain existing facilities in a condition that meets all existing applicable seismic safety standards. Those facilities that cannot be upgraded or maintained would remain unoccupied and would be demolished. Therefore, no significant impacts are expected under the No Action Alternative.

Settlement. Most of the potential settlement of the fill materials in the project site, under existing loading conditions, has already occurred. Additional future settlement is likely to be small and is unlikely to result in significant impacts.

Differential Settlement. Differential settlement can damage foundations, tilt or buckle structural supports, and misalign horizontal features, such as doorways, utility connections, or other rigid transitions. Differential settlement may occur throughout the project site but would probably be most severe in areas where differential settlement has been observed in the past; these areas are presumed to be underlain by an irregular thickness of Bay Mud that fills the erosional surface of the Merritt Sand. Soils with a high shrink-swell potential, which are subject to volume changes associated with wetting and drying, can cause damage to roads and foundations similar to those caused by differential settlement. Soil shrink-swell potential is not expected to be a widespread concern but could cause localized impacts where clayey fill materials are present. These impacts may result in physical damage but are unlikely to affect life safety. Many of the existing structures would be demolished by the Port under the No Action Alternative. Therefore, differential settlement is not expected to cause significant impacts under the No Action alternative.

Soil Erosion/Soil Loss. Construction and demolition activities would increase the potential for soil erosion. Soil erosion is not expected to be a significant geologic impact because it would be limited by the flat topography and required erosion control measures. A grading plan would be required in compliance with City of Oakland regulations.

Lateral Spreading. Lateral spreading could result from either the gradual or sudden failure of the perimeter dikes. Lateral spreading typically causes cracks and fissures to develop in the ground surface, gradually propagating inland as the underlying ground moves horizontally toward the site of the failure. Lateral spreading is not anticipated to be significant because it is a gradual process and because the perimeter dikes are expected to remain stable. Sudden catastrophic failure of a portion of the perimeter dikes caused by an earthquake or by undercutting by channel dredging could be repaired quickly so that the region subject to impacts of lateral spreading would be confined to the locus of the dike failure.

4.1.9 Traffic and Circulation

Impacts are evaluated based upon their reduction to transportation system capacity. The ROI for traffic analysis includes regional freeways in the East Bay from the Alameda/Contra Costa County line to the south Oakland city limits. This ROI for regional freeways was selected in consultation with the Alameda County Congestion Management Agency (CMA) and the Metropolitan Transportation Commission and encompasses areas within the regional transportation network that could be affected by project-generated traffic. The ROI also includes local access routes within a two-mile radius of the project site

and roadway/railroad at-grade crossings from Cutting Boulevard in Richmond to 37th Avenue, south of Fruitvale Avenue, in Oakland. The ROI for local access routes and roadway/railroad crossings was selected because it represents the limits of roads and rail crossings likely to be affected by the project.

4.1.9.1 Significance Criteria

Potential impacts for traffic and circulation were evaluated for intersections and freeways. The City of Oakland has developed standards for traffic operations for intersections, and the Alameda County Congestion Management Agency (CMA) has developed standards for roadway segments on its designated network, including freeways in the ROI.

The City of Oakland has identified LOS D as the minimum acceptable operating condition for intersections that are operating at LOS D or better. Therefore, a particular alternative would be considered a significant impact if the addition of its traffic resulted in a LOS E or F.

The Alameda County CMA has established LOS E as the standard for all roadways on the CMA—designated network (which includes all area freeways). Therefore, a particular alternative would be considered to create a significant impact if the addition of its traffic resulted in LOS F. The Alameda County CMA (Alameda County CMA 1995) does not apply this criterion to freeway segments operating at LOS F in 1991. The following freeway segments have been excluded from conformance with LOS standards:

- I-80 westbound from I-80/580 to the Bay Bridge toll plaza;
- I-80 eastbound and westbound east of the I-80/580 split;
- I-238 eastbound, from I-880 to I-580;
- I-580 eastbound from I-80/580 to I-980/State Highway 24;
- I-980 northbound, from I-880 to I-580; and
- State Highway 24 between I-580 and the Caldecott Tunnel.

There is no established significance criterion for vehicle delay at railroad/highway grade crossings.

4.1.9.2 No Impacts

Peak Hour Traffic at Local Intersections and Freeways and Railroad/Highway Crossings. A minimal number of trips would be generated by the No Action Alternative, and these trips would not affect the local or regional transportation system. The No Action Alternative would not result in an increase in local or regional rail traffic. Therefore, there would be no impact related to increased vehicular delay at railroad/road crossings. Potential long-term cumulative increases in local and regional rail traffic is described in Chapter 5 and in Chapter 6.

Parking and Transit Service. The No Action Alternative would result in a beneficial impact on parking supply for Port-related vehicles that use the Harbor Transportation Center because there would be more available land at FISCO. A minimal number of transit trips would be generated by this alternative, and these trips would not affect the local or regional transit system.

Bicycle and Pedestrian System Impacts. The No Action Alternative would preclude development of the Oakland Middle Harbor public access and marine habitat enhancement plan proposed as part of the Vision 2000 Program that includes pedestrian and bicycle access around the perimeter of the Middle Harbor. This is not considered an impact because this access currently does not exist.

Consistency with Transportation Plans and Regulations. The No Action Alternative would be consistent with the city's transportation goals and objectives. Container routes would continue to be the same roadways designated for such use. Therefore, the No Action Alternative would have no impact regarding consistency with transportation plans and regulations. Cumulative traffic growth, however, is expected to cause several freeway segments to fall below acceptable level of service standards established by the Metropolitan Transportation Commission (see discussion in Chapters 5 and 6).

Neighborhood Impacts. Presently, the West Oakland neighborhood experiences through-traffic and on-street truck parking associated with maritime, rail, and general commerce activity. In addition, traffic is detoured due to lack of the former Cypress Freeway. The new I-880 Cypress Freeway, scheduled for completion in early 1997, will alleviate through-traffic in this neighborhood by removing through truck traffic and other vehicular traffic and by buffering the neighborhood from the project site. Neighborhood streets may continue to be used by some West Oakland residents for truck parking, which is legal on public streets unless otherwise signed. In addition, the availability of the entire FISCO site to the Port under this alternative provides vehicles that use the Harbor Transportation Center with more parking area. Therefore, there would be no impacts from project truck movements in the West Oakland neighborhood.

4.1.10 Air Quality

The ROI for air quality issues varies according to the type of air pollutant. Pollutants that are directly emitted, such as carbon monoxide and some particulate matter, have a ROI generally restricted to areas in the immediate vicinity of the emission source. Pollutants produced by chemical reactions in the atmosphere, such as ozone and secondary particulate matter, have a ROI that includes the entire San Francisco Bay Area.

4.1.10.1 Significance Criteria

Air quality impact assessments address a mix of physical impacts, regulatory requirements, and policy or program consistency issues. This mix of impact analyses requires a fairly broad range of criteria for judging the significance of

individual impact issues. Air quality impacts typically are judged to be significant if project implementation would directly or indirectly result in the following:

- Produce emissions that would cause or contribute to a violation of state or federal ambient air quality standards;
- Bring people into a situation where they would be exposed to air pollutants in concentrations that violate state or federal ambient air quality standards;
- Cause pollutant or pollutant precursor emissions in excess of air quality management agency impact significance thresholds (80 pounds per day or 15 tons per year for ozone precursor–i.e., reactive organic compounds [ROG] and nitrogen oxides [NOx], PM_{10} precursor–sulfur oxides [SOx], and direct PM_{10} emissions from operational activities);
- Conflict with specific air quality management plan policies or programs; or
- Foster or accommodate development in excess of the levels assumed by the applicable air quality management plan.

The choice of significance criteria for physical air quality impact issues is dictated largely by the technical procedures used for the impact assessment. Dispersion modeling analyses have been performed to evaluate the potential for causing or contributing to violations of federal or state carbon monoxide air quality standards. The significance of ozone precursor emissions (ROG and NOx), PM_{10} precursor emissions (SOx), and direct PM_{10} emissions is evaluated in the context of emission significance thresholds established within the Bay Area Air Quality Management District (BAAQMD 1996).

4.1.10.2 Significant Impacts

<u>Impact 1: Construction and Demolition</u>. The No Action Alternative could result in a limited amount of construction activity on FISCO associated with on-site Port activities. No additional marine or rail terminal construction would occur. Nevertheless, there is the potential under the No Action Alternative for occasional periods of construction activity. Emissions associated with construction activities would be considered a significant and mitigable impact.

The BAAQMD guidelines for air quality impact assessments focus on identifying appropriate dust mitigation measures rather than quantifying emissions from construction activities (BAAQMD 1996). The BAAQMD considers construction dust to be a less than significant impact if appropriate dust control measures are implemented.

Mitigation 1. The mitigation presented below represents a range of options available to the Port that may be selected to reduce this impact to a level that is not significant. These measures may be revised or additional measures may be formulated as mitigation during the next tier of environmental review. Implementing the following dust control measures would mitigate the impact of dust and PM_{10} emissions to a not significant level:

- The area disturbed by clearing, earthmoving, or excavation activities should be minimized at all times;
- All areas to be excavated or graded should be sufficiently watered to prevent excessive dust generation during excavation or grading operations;
- All clearing, grading, earthmoving, and excavation activities should be halted during periods of sustained strong winds (hourly average wind speeds of 20 mph or greater);
- Unpaved, inactive portions of the construction site such as portions of parking lots or the public access area should be seeded and watered to maintain a grass cover;
- All exposed soil and sand stockpiles should be enclosed, covered, stabilized with soil binders or should be watered twice daily to control wind erosion;
- All unpaved roadways, parking areas, and staging areas at construction sites should be treated with soil stabilizers or should be watered three times daily;
- All unpaved active portions of the construction site should be watered twice daily or treated with dust control solutions as necessary to minimize windblown dust and dust generation by vehicle traffic;
- Any petroleum-based dust control products used on the site should meet BAAQMD regulations for cutback asphalt paving materials;
- Paved portions of the construction site should be swept as necessary to control wind-blown dust and dust generation by vehicle traffic;
- On-site vehicle speeds should be limited to 15 mph or less; and
- Streets adjacent to construction sites and staging areas should be swept daily to remove accumulated dust and soil.

4.1.10.3 No Impacts

Federal Clean Air Act Conformity. Retention of nonreversionary Navy property in caretaker status under the No Action Alternative is not a federal agency action subject to Clean Air Act conformity determination requirements. Therefore, no impacts are expected.

Carbon Monoxide Concentrations from Area Traffic and Traffic-related Ozone Precursor Emissions. The No Action Alternative would not generate any significant traffic and therefore would not have any impact on local carbon monoxide hot spot or regional ozone precursor emissions.

Asbestos and Lead Particles from Demolition Activities. Older buildings on FISCO may have lead-based paints and materials containing friable asbestos. Building demolition activities have the potential to release lead or asbestos-contaminated materials into the air. However, compliance with applicable local, state, and federal regulations related to asbestos and lead removal/abatement requirements during building demolition or remodeling would prevent significant airborne releases of these materials. Therefore, no impact is expected.

Land Use Compatibility Conflicts. The industrial land uses associated with Port operations do not include the types of manufacturing and processing industries that are typical sources of odor problems. The limited amount of equipment maintenance facilities associated with Port activities on FISCO under the No Action Alternative would not be major sources of hazardous air pollutant emissions. BAAQMD air quality permit procedures would establish required emission controls for these facilities. Consequently, no air quality-related land use conflicts with adjacent residential and commercial neighborhoods are anticipated, and there would be no impacts.

4.1.11 Noise

For this EIS/EIR, the ROI is the northwestern portion of Oakland (south of I-580 and west of Market Street), extending south, north, and east from the project site along the Southern Pacific mainline railroad tracks and into the Central Valley. A more localized ROI of about one-half mile from the noise source is appropriate for many discrete noise sources.

4.1.11.1 Significance Criteria

Annoyance effects are the primary consideration for most noise impact assessments. Land use compatibility guidelines from local general plans are the most common source of criteria used to assess significance for noise issues. Regulatory thresholds established by state and local codes also can provide some of the criteria used to judge the significance of noise impacts.

Because the reaction to noise level changes involves both physiological and psychological factors, the magnitude of a noise level change can be as important as the resulting overall noise level. A readily noticeable increase in noise levels often

will be considered a significant effect by local residents, even if the overall noise level is still within land use compatibility guidelines. On the other hand, noise level increases that are not noticeable to most people generally are not considered a significant change, even if the overall noise level is close to or somewhat above land use compatibility guidelines.

A variety of factors related to the nature of a noise source also can affect people's reaction to it. Most people find evening and nighttime noise the most objectionable and are more willing to accept noise sources that operate only during daytime hours. Similarly, temporary noise sources generally are tolerated more than permanent noise sources. Depending on the repetition pattern, intermittent noise sources can be either more or less objectionable than continuous noise sources.

A proposed action can have significant noise impacts through two different mechanisms—creating new sources of noise in an area or establishing noise-sensitive land uses in locations that will be exposed to high noise levels. Both situations must be considered when establishing significance criteria for noise impacts.

Project-related noise changes are identified by comparing future conditions with the project to future conditions without the project. The Port of Oakland has determined that project-generated noise levels would be considered a significant noise impact under the following conditions:

- If there is a project-related increase in CNEL levels of three dB or more that affects noise-sensitive land uses (residential, medical, or educational land uses) and that results in an overall noise level that would exceed 65 dB.

- In noise environments below 65 dB, if there is a project-related increase in CNEL levels of five dB or more that affects noise-sensitive land uses.

Temporary noise sources that are restricted to daytime hours, such as most construction and demolition activities, will be considered a significant impact only if they affect noise-sensitive land uses and result in noise levels that would exceed the limits in the Oakland noise ordinance.

4.1.11.2 Not Significant Impacts

Construction and Demolition. The No Action Alternative would entail further expansion of Port-related development onto the FISCO site, resulting in a limited amount of construction activity. No marine or rail terminal construction would occur. However, there is the potential for occasional periods of construction activity under the No Action Alternative. Noise from construction activities would not be a significant disruption to on-site industrial activities at FISCO.

Construction activities under the No Action Alternative generally would be more than 1,000 feet from the nearest residential developments. This distance is sufficient to avoid any significant noise effects from construction activity and is considered a not significant impact.

4.1.11.3 No Impacts

Noise/Land Use Compatibility Conflicts. The No Action Alternative would not significantly alter existing land use patterns at FISCO or generate any new noise-related land use conflicts; therefore, there would be no noise impacts.

Noise Generated by Vehicle and Train Traffic. The Navy's No Action Alternative would not generate any significant on-site or off-site vehicle traffic or cause a change in off-site rail traffic volumes. Therefore, there would be no vehicle or train-related noise impacts.

Noise Generated by Railyard and Marine Terminal Operations. The No Action Alternative would result in no significant changes to nearby railyard activities at the Southern Pacific or Union Pacific Railyards. No new marine terminals would be constructed at FISCO under this alternative and existing marine terminal operations occur more than 3,000 feet from residential or other noise-sensitive land uses. Therefore, there would be no noise impacts associated with railyard or marine terminal operations.

4.1.12 Utilities

The ROI for utilities is the project site, for impacts associated with on-site infrastructure, as well as the local service area that would provide off-site utility services, such as wastewater treatment and landfill disposal.

4.1.12.1 Significance Criteria

An alternative may have significant impacts on a utility or service if it would increase demand in excess of utility system or service capacity to the point that substantial expansion would be necessary. Significant environmental impacts also could result from system deterioration due to improper maintenance or extension of service beyond its useful life. Impacts also would be identified as significant if federal, state, or local standards or requirements regulating a public utility system were violated. Data on current and historic utilities usage were not available for the entire project site; data on historic, current, and projected employment were available. In most cases, utilities usage is related to land use and employment or population levels.

4.1.12.2 Not Significant Impacts

Impacts to Utilities. Most FISCO utilities are in adequate condition and are sized to support existing and future activities under this alternative. The natural gas and stormwater systems are in deteriorating condition; however, any future repairs or upgrades would be the responsibility of the Port of Oakland and would

be undertaken as part of existing or future lease agreements with the Navy. This is considered a not significant impact.

4.1.13 Hazardous Materials and Waste

Hazardous materials and wastes, Installation Restoration Program (IRP) sites, asbestos, PCBs, storage tanks, pesticides, lead, radioactive materials and waste, medical/biohazardous wastes, and ordnance (military weapons, ammunition, and related supplies) are discussed in this section. The ROI relative to hazardous materials and waste is the project site and any surrounding area that may have been affected by hazardous materials or hazardous waste originating from the project site or from which hazardous materials or wastes could migrate onto the project site.

4.1.13.1 Significance Criteria

The following criteria were used to identify potential impacts:

- Asbestos- or lead-containing dust released during the demolition or renovation of a building;
- Activities that would require plans or programs under federal, state, or local law and for which no remediation plans have been developed;
- New operational requirements or service for underground storage tanks and tank systems; and
- Releases that result in the public or the environment being exposed to hazardous substances.

4.1.13.2 No Impacts

Hazardous Materials and Waste Impacts. Under the No Action Alternative, the quantity of hazardous materials used, stored, and disposed of on nonreversionary Navy property would be minimal because there is no expected change in use on this portion of FISCO. Under the No Action Alternative, Navy caretaker actions would not generate hazardous waste. Furthermore, the No Action Alternative would not impact any current or future site or remedial investigations at the base associated with the Installation Restoration Program.

Building demolition activities have the potential to release lead or asbestos-contaminated materials. However, compliance with applicable local, state, and federal regulations related to asbestos and lead removal/abatement requirements during building demolition or remodeling would prevent significant airborne releases of these materials. Therefore, no impact is expected.

The use of storage tanks would be minimal and the quantity of pesticides used at FISCO likely would decrease or cease. The use of radioactive materials and wastes would also cease after base closure. In addition, medical and biohazardous waste would not be stored, generated, or disposed at the project site.

4.2 NAVY DISPOSAL

Navy disposal would transfer ownership of nonreversionary Navy property from the Navy to the Port.

4.2.1 Land Use

The ROI would be the same as that presented under the No Action Alternative.

4.2.1.1 Significance Criteria

Significance criteria would be the same as those presented under the No Action Alternative.

4.2.1.2 No Impacts

Land Use Impacts. Disposal, as a transfer of title, in and of itself is not an environmentally disruptive action and would not directly impact land use because no major change to on-site land uses would occur as part of disposal.

4.2.2 Socioeconomics

The ROI would be the same as that presented under the No Action Alternative.

4.2.2.1 Significance Criteria

Significance criteria would be the same as those presented under the No Action Alternative.

4.2.2.2 No Impacts

Socioeconomic Impacts. No socioeconomic impacts would result from Navy disposal of FISCO since disposal is simply a transfer of title. This action in and of itself would not affect regional employment, income, population, housing, or schools issues.

4.2.3 Public Services

The ROI would be the same as that presented under the No Action Alternative.

4.2.3.1 Significance Criteria

Significance criteria would be the same as those presented under the No Action Alternative.

4.2.3.2 No Impacts

Increased Demand for Public Services. No impacts to public services would result from Navy disposal of FISCO because disposal is essentially a transfer of title and is in and of itself not an environmentally disruptive action. There would be no expected change from current demands for public services provided by city and county agencies.

4.2.4 Cultural Resources

This section analyzes impacts to cultural resources as a result of Navy disposal. The ROI would be the same as that presented under the No Action Alternative.

4.2.4.1 Significance Criteria

Significance criteria would be the same as those presented under the No Action Alternative.

4.2.4.2 Significant Impacts

Impact 1: Demolition of Historic Buildings and Structures in the Naval Supply Center, Oakland Historic District. Under this alternative, the Navy would dispose of nonreversionary Navy property for use by the Port. While Navy disposal concerns only nonreversionary Navy property, historic properties are located on both reversionary Navy and nonreversionary Navy lands. In analyzing impacts to historic properties, the Navy will consider impacts to the entire base.

Navy disposal of FISCO could adversely affect NRHP-eligible properties because an undertaking is considered to have an adverse impact when the effect on a historic property may diminish the integrity of that resource. The transfer, lease, or sale of a property from federal ownership without adequate restrictions or deed covenants to ensure preservation is an adverse effect and, for purposes of NEPA, would be a significant impact. This impact would apply to all FISCO contributing buildings and structures within the NRHP-eligible Naval Supply Center, Oakland Historic District.

The disposal would be made with the understanding that the Port may demolish all or nearly all contributing buildings within the Naval Supply Center, Oakland Historic District. This demolition will complete the program set forth in the 1994 MOA through which much of the Naval Supply Center, Oakland Historic District would be demolished to make way for expansion of the Port. The demolition accepted under the 1994 MOA will effectively destroy much of the Naval Supply Center, Oakland Historic District, resulting in demolition of 39 of the 84 contributing buildings. This is considered a significant but mitigable impact for the purposes of NEPA.

Mitigation 1. Implement Mitigation 1 under the No Action Alternative.

4.2.4.3 No Impacts

Prehistoric, Native American, and Historic Archeological Resources. Navy disposal of FISCO will have no impact on prehistoric, Native American, or historic archeological resources listed in or eligible for listing in the NRHP because no such resources are known to exist within the boundaries of the project site (Hagel 1996). There is a very low probability that unrecorded resources will be encountered and no mitigation is required. However, should previously unknown surface or subsurface prehistoric, Native American, or historic archeological resources be discovered during future ground-disturbing activities, all work should stop pending documentation and evaluation of the resource by a qualified archeologist.

4.2.5 Visual Resources

The ROI would be the same as that presented under the No Action Alternative.

4.2.5.1 Significance Criteria

Significance criteria would be the same as those presented under the No Action Alternative.

4.2.5.2 No Impacts

Impacts to Visual Resources. The disposal action would not affect visual resources because disposal would not entail any changes to the physical environment. The disposal action is a transfer of title and is in and of itself not an environmentally disruptive action.

4.2.6 Biological Resources

The ROI would be the same as that presented under the No Action Alternative.

4.2.6.1 Significance Criteria

Significance criteria would be the same as those presented under the No Action Alternative.

4.2.6.2 No Impacts

Impacts to Biological Resources. The disposal of nonreversionary Navy property out of federal ownership would not result in any impacts to biological resources, including special status species, nonsensitive species, or their habitats. Disposal of the site is a transfer of title, and no direct or indirect physical impacts would result.

4.2.7 Water Resources

The ROI would be the same as that presented under the No Action Alternative.

4.2.7.1 Significance Criteria

Significance criteria would be the same as those presented under the No Action Alternative.

4.2.7.2 No Impacts

Impacts to Water Resources. Disposal is simply a transfer of title and is in and of itself not an environmentally disruptive action. No water resources impacts will result from this transfer of title.

4.2.8 Geology and Soils

The ROI would be the same as that presented under the No Action Alternative.

4.2.8.1 Significance Criteria

Significance criteria would be the same as those presented under the No Action Alternative.

4.2.8.2 No Impacts

Impacts to Geology and Soils. No direct geologic impacts have been identified for disposal of FISCO by the Navy because disposal is simply a transfer of title and is in and of itself not an environmentally disruptive action. Although the federal government is not required to comply with state and local building codes and ordinances, these state and local laws and regulations impose specific requirements on local jurisdictions. Therefore, transfer of nonreversionary Navy property to the Port would result in the Port taking responsibility for complying with all federal, state, and local requirements related to seismic and geotechnical standards.

4.2.9 Traffic and Circulation

The ROI would be the same as that presented under the No Action Alternative.

4.2.9.1 Significance Criteria

Significance criteria would be the same as those presented under the No Action Alternative.

4.2.9.2 No Impacts

Traffic and Circulation Impacts. Disposal, essentially a transfer of title, would not affect traffic or circulation. Disposal of FISCO would not create any vehicle or rail traffic, parking, transit, or bicycle and pedestrian impacts.

4.2.10 Air Quality

The ROI would be the same as that presented under the No Action Alternative.

4.2.10.1 Significance Criteria

Significance criteria would be the same as those presented under the No Action Alternative.

4.2.10.2 No Impacts

Air Quality Impacts. Navy disposal of FISCO would not result in an impact to air quality because Navy disposal is simply a transfer of title and is in and of itself not an environmentally disruptive action.

4.2.11 Noise

The ROI would be the same as that presented under the No Action Alternative.

4.2.11.1 Significance Criteria

Significance criteria would be the same as those presented under the No Action Alternative.

4.2.11.2 No Impacts

Noise Impacts. Navy disposal is simply a transfer of title and is in and of itself not an environmentally disruptive action. It would not result in any demolition, construction, or new uses of the property. Therefore, it would cause no noise impacts.

4.2.12 Utilities

The ROI would be the same as that presented under the No Action Alternative.

4.2.12.1 Significance Criteria

Significance criteria would be the same as those presented under the No Action Alternative.

4.2.12.2 No Impacts

Impacts to Utilities. Navy disposal of nonreversionary Navy property will have no direct impacts on utilities. Current plans call for utility operations and maintenance to be transferred to the Port in April 1997.

4.2.13 Hazardous Materials and Waste

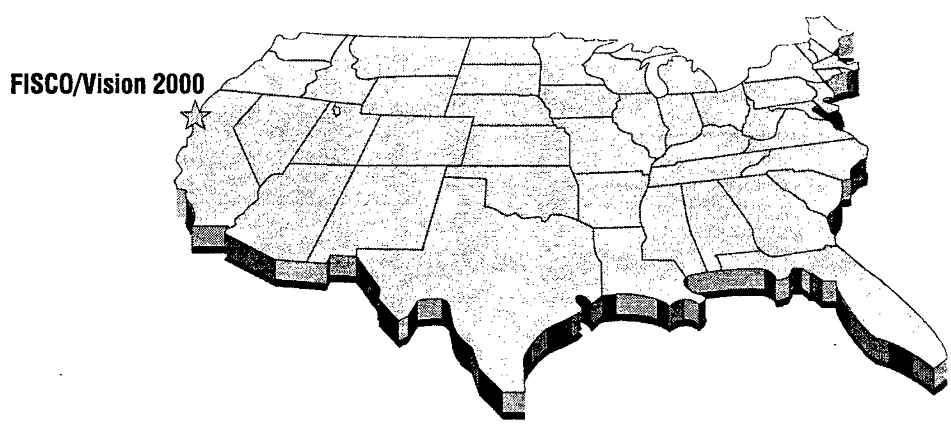
The ROI would be the same as that presented under the No Action Alternative.

4.2.13.1 Significance Criteria

Significance criteria would be the same as those presented under the No Action Alternative.

4.2.13.2 No Impacts

Hazardous Materials or Waste Impacts. No hazardous material or waste-related impact would occur from disposal of FISCO. The Navy is required to remediate any contamination prior to transfer. Base activities, including those that involve hazardous materials and waste, would cease. Disposal, therefore, would result in lower quantities of hazardous materials used or stored on nonreversionary Navy property or removed for off-site disposal.



5.0 ENVIRONMENTAL CONSEQUENCES OF PORT REUSE ALTERNATIVES

CHAPTER 5
ENVIRONMENTAL CONSEQUENCES OF PORT REUSE ALTERNATIVES

This chapter describes the potential environmental consequences associated with the implementation of the Port of Oakland's Vision 2000 Program. Impacts are described at a relatively general level of detail, which is consistent with the level of detail in the Vision 2000 Program. For purposes of the Navy NEPA analysis, direct environmental consequences or impacts are those associated with Navy disposal of nonreversionary Navy property and the No Action Alternative, indirect impacts are associated with Port reuse of nonreversionary Navy property, and cumulative environmental impacts are associated with the Port's reuse of reversionary Navy property and non-Navy property needed for the Vision 2000 Program. The Navy has no control over the Port's use of reversionary Navy property after reversion to the Port, nor does the Navy have control over the Port's proposed use of non-Navy property. Future specific projects and development proposals would be subject to further CEQA and environmental review requirements set forth by the Port of Oakland.

Impacts for the 13 resource areas described in Section 3 are presented under each alternative. The resource area discussions begin with an introduction that includes planning issues associated with the resource area and its region of influence (ROI). An ROI is a geographic area in which impact for a particular resource would likely occur. The ROI for a resource having regional impacts would be different than the ROI for a resource with localized impacts. Where appropriate, analysis methodology and assumptions also are described.

The introduction is followed by the criteria used to determine if an impact would be significant and a discussion of the significant and not significant impacts for each resource area. For each impact, a determination has been made as to if would constitute a significant or a not significant impact. In addition, where beneficial

impacts are identified, the nature of the beneficial impact is discussed in the text of the document.

Mitigation measures are identified for any impact determined to be significant. Significant impacts and mitigation measures are numbered, while not significant impacts (including beneficial) are listed separately from the significant impacts and are not numbered. Unavoidable impacts that cannot be mitigated to a less than significant level also are identified. The mitigation measures described in this section are available to the Port to reduce environmental impacts. The Navy would not be responsible for implementing or funding any mitigation measures related to the Vision 2000 Program. The impacts shown in Table 5-1 are applicable to the entire project site. Where applicable, the location of the impact has been identified as being on nonreversionary Navy property, reversionary Navy property, or other non-Navy property (see Figures ES-2 and 1-3). All of these impacts are associated with Port reuse alternatives.

5.1 Maximum Marine Terminal/Maximum Rail Terminal Alternative

Under the Maximum Marine/Maximum Rail Alternative, the Port would develop an approximately 380-acre intermodal rail terminal, an approximately 260-acre marine terminal area with five berths, container storage, and truck parking areas. Approximately 29 acres of public waterfront access and 177 acres of marine habitat enhancement in the Middle Harbor also are proposed as part of the Maximum Marine/Maximum Rail Alternative.

5.1.1 Land Use

The ROI for land use is the project site and surrounding lands within at least one-half mile of the site. The ROI boundary is defined to the north and west by San Francisco Bay, to the south by Naval Air Station (NAS) Alameda, and to the east by West Grand Avenue, I-980, and the Howard Terminal (a marine terminal that is part of Port operations in the Oakland Inner Harbor). This ROI was identified because impacts to land uses should be considered in light of their consistency with existing uses and congruity with adjacent uses, such as those in San Francisco Bay and West Oakland.

Land use impacts are evaluated against 1996 conditions under the assumption that the entire FISCO site is active under a Navy lease to the Port. Construction and demolition impacts also are considered when evaluating the potential land use impacts of this action.

Implementation of the Maximum Marine/Maximum Rail Alternative would require expansion of the Port's jurisdiction to encompass properties outside the FISCO site, namely, portions of the Southern Pacific West Oakland Yard and the Union Pacific West Oakland Intermodal Railyard. In addition, the issue of land ownership will be important as the Port and the railroad companies discuss Port proposals to develop maritime-related activities on land that it does not own, such as Southern Pacific Railroad and Union Pacific Railroad property.

Table 5-1
Summary of Impacts and Significance for Port Reuse Alternatives

IMPACT ISSUES	Maximum Marine Terminal/ Maximum Rail Terminal Alternative	Minimum Marine Terminal/ Minimum Rail Terminal Alternative	Maximum Marine Terminal/ Minimum Rail Terminal Alternative	Reduced Harbor Fill Alternative
LAND USE				
Removal of Middle Harbor Park (O)	◑	○	◑	◑
Relocation of Port and railroad tenants (N, R, O)	⦶	⦶	⦶	⦶
Construction and demolition (N, R, O)	⦶	⦶	⦶	⦶
Land use pattern reconfiguration (N, R, O)	⦶	⦶	⦶	⦶
Land use change (R, O)	○	○	○	○
SOCIOECONOMICS[1]				
Employment and income	○	○	○	○
Population, housing, and schools	○	○	○	○
PUBLIC SERVICES				
Removal of local medical clinic (O)	◑	⦶	⦶	◑
Increased emergency response times and demand for fire services (N, R, O)	⦶	⦶	⦶	⦶
Police services (N, R, O)	⦶	⦶	⦶	⦶
Emergency medical services (N, R, O)	⦶	⦶	⦶	⦶
CULTURAL RESOURCES				
Demolition of historic buildings and structures in the NSCO Historic District (N, R)	◑	◑	◑	◑
Demolition of historic buildings and structures in the Southern Pacific West Oakland Shops Historic District (O)	◑	○	○	○
Demolition of the north training wall (O)	◑	○	◑	◑
Demolition of historic buildings and structures in the Oakland Army Base Historic District (O)	○	○	◑	○
Don Gary Investments, Ltd., and Space Assignment Leases (O)	○	○	○	○
Prehistoric, Native American, and historic archeological resources (N, R, O)	○	○	○	○
VISUAL RESOURCES[1]				
Off-site views from Alameda Shoreline	◑*	⦶	◑*	⦶
Loss of visual access from Middle Harbor Park	◑	○	◑	◑
Increased light and glare	⦶	⦶	⦶	⦶
Views from Jack London Square area	⦶	○	⦶	⦶
Views from Port View Park	⦶	⦶	⦶	⦶
Views from major transportation corridors	⦶	⦶	⦶	⦶
Views from West Oakland and Alameda neighborhoods	⦶	⦶	⦶	⦶
Views of rail terminal control tower	⦶	⦶	⦶	⦶

Table 5-1 *(continued)*
Summary of Impacts and Significance for Port Reuse Alternatives

IMPACT ISSUES	Maximum Marine Terminal/ Maximum Rail Terminal Alternative	Minimum Marine Terminal/ Minimum Rail Terminal Alternative	Maximum Marine Terminal/ Minimum Rail Terminal Alternative	Reduced Harbor Fill Alternative
Loss of distinct landscape features	⦶	⦶	⦶	⦶
Consistency with plans and policies	⦶	⦶	⦶	⦶
Public access to the Oakland Middle Harbor shoreline and new view opportunities	○	○	○	○
BIOLOGICAL RESOURCES				
Potential loss of least tern foraging habitat (O)	◑*	⦶	◑*	◑*
Potential loss of burrowing owl habitat at Middle Harbor Park (O)	◑*	○	◑*	◑*
Removal of eelgrass beds (O)	◑	◑*	◑	◑
Special status species - California brown pelican (R, O)	⦶	⦶	⦶	⦶
Special status species - American peregrine falcon (R, O)	⦶	⦶	⦶	⦶
Special status species - Chinook salmon (R, O)	⦶	⦶	⦶	⦶
Nonsensitive species and habitats – herring spawning activities (R, O)	⦶	⦶	⦶	⦶
Displacement of fish populations (R, O)	⦶	○	⦶	⦶
Marine habitat enhancement area (R, O)	○	○	○	○
WATER RESOURCES				
Pollutants in runoff and adjacent waters (R, O)	◑*	◑*	◑*	◑*
Potential water quality degradation from dredging contaminated material (R, O)	◑*	◑*	◑*	◑*
Potential water quality degradation from reuse or disposal of contaminated material (O)	◑*	◑*	◑*	◑*
Water quality degradation from filling (R, O)	◑*	◑*	◑*	◑*
Increased runoff and ponding (N, R, O)	⦶	⦶	⦶	⦶
Tsunami runup (N, R, O)	⦶	⦶	⦶	⦶
Flood hazards to low-lying portions of the project site (N, R, O)	⦶	⦶	⦶	⦶
Increased erosion and sedimentation (R, O)	⦶	⦶	⦶	⦶
Water quality degradation from removal of Oakland Middle Harbor Piers (R, O)	⦶	⦶	⦶	⦶
Increased sedimentation from dredging and filling (R, O)	⦶	⦶	⦶	⦶
Water quality degradation from dredging clean material (R, O)	⦶	⦶	⦶	⦶
Saltwater penetration of aquifers from dredging and filling (N, R, O)	⦶	⦶	⦶	⦶
Ground water quantity and quality (N, R, O)	⦶	⦶	⦶	⦶

Table 5-1 *(continued)*
Summary of Impacts and Significance for Port Reuse Alternatives

IMPACT ISSUES	Maximum Marine Terminal/ Maximum Rail Terminal Alternative	Minimum Marine Terminal/ Minimum Rail Terminal Alternative	Maximum Marine Terminal/ Minimum Rail Terminal Alternative	Reduced Harbor Fill Alternative
GEOLOGY AND SOILS[1]				
Public exposure to earthquakes and damage to structures and utilities from ground shaking	◑*	◑*	◑*	◑*
Damage to shoreline slopes, foundations, structures, and utilities from liquefaction	◑*	◑*	◑*	◑*
Settlement	◑*	◑*	◑*	◑*
Differential settlement	◑*	◑*	◑*	◑*
Soil erosion/soil loss	⦶	⦶	⦶	⦶
Lateral spreading	⦶	⦶	⦶	⦶
TRAFFIC AND CIRCULATION[1]				
Peak hour traffic at local intersections	◑	◑	◑	◑
Freeways	⦶	⦶	⦶	⦶
Railroad/highway crossings	⦶	⦶	⦶	⦶
Parking	⦶	⦶	⦶	⦶
Transit service	⦶	⦶	⦶	⦶
Bicycle and pedestrian system impacts	⦶	⦶	⦶	⦶
Consistency with transportation plans and regulations	⦶	⦶	⦶	⦶
Neighborhood impacts	⦶	⦶	⦶	⦶
AIR QUALITY[1]				
Transportation-related air pollutant emissions	●	●	●	●
Construction and demolition	◑	◑	◑	◑
Carbon monoxide concentrations from area traffic	⦶	⦶	⦶	⦶
Asbestos and lead particles from demolition activities	⦶	⦶	⦶	⦶
Land use compatibility conflicts	⦶	⦶	⦶	⦶
Federal Clean Air Act conformity	○	○	○	○
NOISE[1]				
Rail traffic noise north and east of West Oakland	⦶	⦶	⦶	⦶
Construction and demolition	⦶	⦶	⦶	⦶
Noise generated by vehicle traffic	⦶	⦶	⦶	⦶
Noise generated by marine terminal operations	⦶	⦶	⦶	⦶
Noise generated by railyard operation	⦶	⦶	⦶	⦶
Rail traffic noise south of West Oakland	⦶	⦶	⦶	⦶
UTILITIES[1]				
Solid waste	⦶	⦶	⦶	⦶
Water supply system	⦶	⦶	⦶	⦶

Table 5-1 *(continued)*
Summary of Impacts and Significance for Port Reuse Alternatives

IMPACT ISSUES	Maximum Marine Terminal/ Maximum Rail Terminal Alternative	Minimum Marine Terminal/ Minimum Rail Terminal Alternative	Maximum Marine Terminal/ Minimum Rail Terminal Alternative	Reduced Harbor Fill Alternative
Sanitary sewer system	⦶	⦶	⦶	⦶
Stormwater system	⦶	⦶	⦶	⦶
Electrical, natural gas, and telephone systems	⦶	⦶	⦶	⦶
HAZARDOUS MATERIALS AND WASTE[1]				
Polychlorinated biphenyls	◑*	◑*	◑*	◑*
Storage tanks	◑*	◑*	◑*	◑*
Oil/water separators and waste impoundments	◑*	◑*	◑*	◑*
Historic land use activities	◑*	◑*	◑*	◑*
Hazardous waste generation	⦶	⦶	⦶	⦶
Hazardous material use	⦶	⦶	⦶	⦶
Hazardous waste and materials management	⦶	⦶	⦶	⦶
Installation Restoration Program	⦶	⦶	⦶	⦶
Asbestos	⦶	⦶	⦶	⦶
Pesticides	⦶	⦶	⦶	⦶
Lead	⦶	⦶	⦶	⦶
Radon	⦶	⦶	⦶	⦶
Radioactive material and waste	⦶	⦶	⦶	⦶
Medical and biohazardous waste	⦶	⦶	⦶	⦶
Ordnance	⦶	⦶	⦶	⦶

[1]Impacts associated with this resource category could occur throughout the project site (i.e., on nonreversionary Navy property, reversionary Navy property, and other non-Navy property).

LEGEND:

Level of Impact		Location of Impacts	
● -	Significant and not mitigable	N -	Nonreversionary Navy property
◑ -	Significant and mitigable	R -	Reversionary Navy property
⦶ -	Not significant	O -	Other non-Navy property
○ -	None		(See Figures ES-2 and 1-3 for locations of these properties)

* - Potential significant impact under CEQA. Potential significant but mitigable impacts are identified in situations where either 1) there is not enough information or design detail available at this stage of the project to make a definitive determination as to the relative significance of an impact or 2) future studies are planned that will determine the relative significance of the impact.

5.1.1.1 Significance Criteria

Land use impacts occur through changes to land uses, construction of new buildings, and infrastructure and demolition activities. An alternative could cause a significant impact on land use if implementation conflicts with established residential, recreational, educational, or scientific uses in the project site, if it would disrupt or divide established land use configurations, or if it would result in a substantial alteration of present or planned land use.

5.1.1.2 Significant Impacts

Impact 1: Removal of Middle Harbor Park. Proposed marine terminal development along the Oakland Inner Harbor would displace the approximately one-acre Middle Harbor Park and would require reconfiguration of Middle Harbor Road.

This would result in the loss of a city park and would impact the proposed route of the San Francisco Bay Trail through the project site. Currently, the trail is proposed along Maritime Street, across 7th Street, and down Middle Harbor Road along the northeastern boundary of the FISCO site, ending at the present location of Middle Harbor Park. This route would be unavailable to Bay Trail planners if the park is displaced and Middle Harbor Road reconfigured. This significant impact is mitigable and would take place on non-Navy property owned by the Port.

Mitigation 1. The Port's Vision 2000 Program includes a public access component that would substantially increase the amount of usable public recreational and open space opportunities in the area, an environmental benefit. Under the Maximum Marine/Maximum Rail Alternative, up to 29 acres of public access and an additional 177 acres of habitat improvements are proposed in the Middle Harbor. These improvements would extensively improve public waterfront access in the project area. Currently, the Bay Trail diverges at the intersection of Maritime Street and 7th Street to provide access to both Middle Harbor Park and Port View Park. The proposed public waterfront access and marine habitat enhancement area at Middle Harbor would be located somewhere south of the intersection of 7th Street and the reconfigured Middle Harbor Road. At this location, public access to Middle Harbor would be along the same portion of the Bay Trail that leads to Port View Park. Implementation of Mitigation 1 would reduce this impact to a level that is not significant.

5.1.1.3 Not Significant Impacts

Relocation of Port and Railroad Tenants. As a result of implementing the Maximum Marine/Maximum Rail Alternative, the Harbor Transportation Center would need to be relocated off-site. There are many potential alternative sites within the Port's industrial harbor area west of the new Cypress I-880 freeway and south of the Oakland Bay Bridge that could accommodate this use. At this time, the Port has not identified a specific site for relocating this facility. The impacts associated with relocating the Harbor Transportation Center and developing a regional truck stop are not anticipated to be significant because they would not entail a substantial alteration of existing uses in the vicinity of the project site. However, the Port will further pursue identifying and securing potential off-site locations for relocating these land uses, if and when their relocation is required. This relocation will be addressed further as part of subsequent project-level environmental documentation as project plans reach the design phase. This action would take place on reversionary and nonreversionary Navy property, and relocated activities would be moved to non-Navy property.

Implementation of the Maximum Marine/Maximum Rail Alternative also would result in the removal of Union Pacific rail access to some tenants leasing land on Union Pacific property to make room for marine terminal development along the Oakland Inner Harbor. As a result, this facility would become inaccessible by rail and therefore unusable. The frozen meat facility will be relocated to a new location, although a specific site has not been identified yet. The Port or Union Pacific Railroad will pursue identifying and securing off-site locations for relocating these land uses if and when their relocation is required. Their relocation will be further addressed as part of subsequent project-level environmental documentation as project plans reach the design phase, and this does not constitute a significant impact. This impact would take place on non-Navy property.

Construction and Demolition. Proposed construction and demolition activities proposed under the Maximum Marine/Maximum Rail Alternative could produce temporary impacts to surrounding uses if adjacent areas are occupied during this activity. Impacts could result from activities such as building destruction, breaking concrete foundations, site grading, and infrastructure installation. These impacts would not be significant because they would be temporary and, in many cases, would occur in areas surrounded by vacant structures. Construction and demolition activities would occur on non-Navy property, nonreversionary Navy property, and reversionary Navy property.

Land Use Pattern Reconfiguration. The Maximum Marine/Maximum Rail Alternative would reorganize existing land uses at the project site. The Union Pacific Intermodal Yard would primarily become a marine terminal and container storage area. The existing storage areas, warehouses, and rail tracks on FISCO would be removed to accommodate the intermodal rail terminal. Although the pattern of land uses would be reconfigured within the project site, overall land uses would remain the same. Consequently, this would not have a significant impact on the project site. This action would take place on nonreversionary Navy property, reversionary Navy property, and non-Navy land.

5.1.1.4 No Impacts

Land Use Change. Creation of the public waterfront access and marine habitat enhancement area in the Oakland Middle Harbor would be a change from the area's current use as a harbor, docking, storage, and warehouse area. In general, this would have the beneficial impact of providing additional land for public access, habitat mitigation, and open space, which furthers the goals of the Association of Bay Area Governments (ABAG) to preserve open space and bay views, to protect sensitive environments, and to offer recreation sites close to home and work (ABAG 1994). This same public waterfront access and marine habitat enhancement area has the additional beneficial impact of increasing the amount of open space in the area, complying with the City of Oakland's policy on civic and open space. This action would occur on that portion of FISCO reverting to the Port.

5.1.2 Socioeconomics

This analysis addresses socioeconomic impacts on employment, income, population, housing, and schools. Environmental justice issues are addressed in detail in Chapter 6. This section presents information on the methodology used for the socioeconomic impact analysis of the four Port reuse alternatives and identifies specific socioeconomic impacts and mitigations for the Maximum Marine/Maximum Rail Alternative. The description of impacts and mitigation for the Minimum Marine/Minimum Rail, Maximum Marine/Minimum Rail, and Reduced Harbor Fill Alternatives are presented in Sections 5.2, 5.3, and 5.4, respectively.

The ROI for socioeconomic impacts varies, depending on the type of impact being analyzed. For population, income, employment, housing, and schools this EIS/EIR addresses impacts for the counties of Alameda, Contra Costa, and San Francisco, selected because an estimated 80 percent of all persons directly employed through the Port's maritime activities resided in these counties in 1990 (Port of Oakland 1990). Environmental justice impacts, described in Chapter 6, are examined only for the West Oakland community because this area would have the greatest exposure to any direct environmental impacts that result from implementation of any of the project alternatives.

5.1.2.1 Methodology

To determine socioeconomic impacts on the regional economy, increases in economic activity that would occur between 1995 and 2010 are evaluated. These effects are estimated first by determining the number of direct jobs that would be created under each reuse alternative. To provide a context from which to evaluate these impacts, employment projections were developed for the No Action Alternative in 2010. These jobs generate income for spending, and spending supports local and regional businesses, creating additional jobs and more income.

The amount of induced employment (jobs resulting from the direct workers spending their income to purchase household supplies and services in the regional economy) is estimated using an employment multiplier (i.e., the ratio between direct and induced employment) derived from the Port of Oakland's economic impact model. This multiplier was calculated for Port activity in both 1990 and 1995, then verified against multipliers for induced employment generated at the University of California at Berkeley by the IMPLAN input-output model for specific sectors—including transportation, railroads, trucking, and warehousing—in the Bay Area economy. Construction jobs are not analyzed because they would be temporary. Personal income associated with direct employment is estimated on a per capita basis in constant 1995 dollars.

Table 5-2 summarizes the employment and income impacts associated with the Port's four reuse alternatives and compares these to the No Action Alternative (i.e., conditions in 2010 without the project). These impacts are discussed in the sections below.

Table 5-2
Socioeconomic Impacts of Alternatives

	No Action Alternative (2010 Without Project)	Maximum Marine/ Maximum Rail Alternative	Minimum Marine/ Minimum Rail Alternative	Maximum Marine/ Minimum Rail Alternative	Reduced Harbor Fill Alternative
Direct employment[1]	11,100	17,400	14,600	18,400	17,700
Induced employment	5,700	8,900	7,500	9,400	9,100
Total employment	16,800[2]	26,300	22,100	27,800	26,800
Net change	NA	9,500	5,300	11,000	10,000
Direct wages and salaries	$433 million	$679 million	$569 million	$718 million	$690 million
Net change	NA	$246 million	$136 million	$285 million	$257 million

[1] Includes direct marine and rail terminal employment at project site and other Port direct jobs in its jurisdiction.
[2] The number of jobs may be underestimated in the No Action Alternative because, compared to the four reuse alternatives, the lower percentage of intermodal cargo could result in a greater requirement for local and regional trucking and delivery services.
Note: Net change shows the difference from 2010 without project.

5.1.2.2 Significance Criteria

The significance of socioeconomic impacts is related to the social and economic characteristics of the region at the time when impacts would occur. The generation of jobs and income generally are considered to be beneficial impacts in the affected region. The more jobs and income generated, the more beneficial the impact.

Population levels and housing and school demand can change in response to changes in employment and income within a region, although in a region as large and complex as the San Francisco Bay Area, such changes that would result from one particular project or action are often impossible to predict or measure. Because changes in population, housing, and school demand can be perceived either positively or negatively, depending upon the values and point of view of the affected community, they are not described as either adverse or beneficial impacts of disposal and reuse actions.

5.1.2.3 No Impacts

Employment and Income. The Maximum Marine/Maximum Rail Alternative would result in the creation of an estimated 9,500 additional new jobs (direct and induced) above the No Action Alternative. Direct wages and salaries paid under the Maximum Marine/Maximum Rail Alternative would be approximately $679 million, or an estimated $246 million (57 percent) more than under 2010 conditions without the project. Worker spending of this payroll would create additional economic benefits throughout the Bay Area economy.

The net increase in employment and income would be beneficial to the economy of the Bay Area and particularly to Alameda, Contra Costa, and San Francisco Counties, whose residents would fill an estimated 70 percent of the additional new jobs created under the Maximum Marine/Maximum Rail Alternative. Many of

the jobs associated with the Port's maritime facility would be filled by unionized longshoremen and railroad workers.

Population, Housing, and Schools. The 9,500 additional workers required to fill the new additional jobs associated with the Maximum Marine/Maximum Rail Alternative represent only about 0.2 percent of the Bay Area's projected 2010 labor force, or 0.5 percent of the projected three-county labor force. Given the availability of labor in the region and the fact that some employees, such as railroad workers, would work at Port facilities but live outside the region, it is anticipated that the Maximum Marine/Maximum Rail Alternative would have no impact on population, housing, or schools in the ROI.

5.1.3 Public Services

This section analyzes impacts to public services, including police, fire, and emergency medical services. The city limits of Oakland were chosen as the ROI because city public service agencies currently provide service to the Vision 2000 project site.

5.1.3.1 Significance Criteria

A project may have a significant impact on public services if it would result in hazardous conditions, in emergency response times exceeding city goals, or in a need for additional facilities, or if it would substantially increase staffing levels.

5.1.3.2 Significant Impacts

Impact 1: Removal of Local Medical Clinic. Buildout of this alternative would require removal of the Port branch of the Spectrum Medical Care clinic, located on Southern Pacific's West Oakland Railyard, due to the realignment of railroad tracks. The clinic is a tenant of the Southern Pacific Railroad and operates under a month-to-month lease. The Maximum Marine/Maximum Rail Alternative would remove a clinic that provides medical services to the West Oakland community, including the project site. The West Oakland community uses this facility to treat work-related injuries and trauma (Sanders, M., July 10, 1996, personal communication). The impact would be significant but mitigable.

The following mitigation represents a likely option available to the Port that may be selected to reduce this impact to a level that is not significant. However, this measure may be revised, or additional measures formulated during the next tier of environmental review.

Mitigation 1. If the Port branch of the Spectrum Medical Care clinic is still a tenant of the Southern Pacific property when and if the Port acquires this land, the Port shall explore methods that would allow this entity to lease other property nearby and relocate. Implementing this mitigation would reduce this impact to a level that is not significant.

5.1.3.3 Not Significant Impacts

Increased Emergency Response Times and Demand for Fire Services. Buildings that remain at FISCO require fire protection services. With the closure of FISCO and full buildout of marine terminals and rail facilities under the Maximum Marine/Maximum Rail Alternative, the number of structures that require fire protection would be reduced substantially, but the area that the Oakland Fire Department would be required to cover would increase. Port facilities are served by the Oakland Fire Department, and response times to the Seventh Street and Outer Harbor Terminals, located farther from the West Oakland Fire Station (Fire Station 3) than FISCO, are adequate. However, the expanded area that the fire department must cover at FISCO during interim development under the Maximum Marine/Maximum Rail Alternative may require increased fire services.

The Port and City of Oakland will enter into negotiations to assess the demand for increased fire protection services as part of project-level environmental review before developing the Vision 2000 Program. If an increased demand for fire services is identified, the Port and city will develop an agreement for providing appropriate resources, as necessary, to reduce this demand. This is considered a not significant impact.

Police Services. Impacts to police services resulting from this alternative would not be significant because the project would not result in hazardous conditions, in the need for additional police facilities, or in demand for increased staffing levels. Although this alternative would result in increased demand for police services at FISCO, the impact is not significant because the City of Oakland Police Department has determined that, based on the proposed development, which would include private security provided by the railroad companies and marine terminal tenants, the increased demand could be met by the current level of service and would not require additional police personnel or resources (Simms, M., November 6, 1996, personal communication).

Emergency Medical Services. Impacts to emergency ambulance services resulting from this alternative would not be significant because the project would not result in hazardous conditions, in the need for additional ambulance facilities, in medical emergency response times exceeding current levels, or in demand for increased staffing levels. Although this alternative would result in increased demand for ambulance services at FISCO and other non-Navy properties in the project site, the impact is not significant because the Alameda County Emergency Services District has determined that, based on the proposed development, the increased demand could be met by the current level of service and would not require additional ambulance units (Akers, D., June 7, 1996, personal communication).

5.1.4 Cultural Resources

This section analyzes impacts to cultural resources at the Vision 2000 project site, including architectural, prehistoric, Native American, and historic archeological resources. The ROI for cultural resources is the entire project site because only

cultural resources within the boundaries of the project site potentially would be affected by the reuse alternatives. Impacts on cultural resources located on nonreversionary Navy property, reversionary Navy property, and non-Navy property are identified where feasible and appropriate. An evaluation of project impacts on historic properties attributable to the first phase of the proposed joint intermodal rail terminal has been prepared, pursuant to Section 4(f) of the Department of Transportation Act of 1966, and is provided in Appendix C.

5.1.4.1 Significance Criteria

The regulations (36 CFR Part 800) implementing Section 106 of the National Historic Preservation Act (NHPA) state that a federal action has an effect on historic property when that action may alter those characteristics of the property that qualify it for inclusion in the National Register of Historic Places (NRHP). An action is considered to have an adverse effect on a historic property when it diminishes the integrity of the property's location, design, setting, materials, workmanship, feeling, or association. Resources that have been determined not eligible could experience adverse effects, but they would not be considered significant because the cultural resources are not considered to be of historic significance. Adverse effects on historic properties include, but are not limited to, the following:

- Physical destruction, damage, or alteration of all or part of the property;

- Isolation of the property or alteration of the character of the property's setting when that character contributes to the property's qualifications for NRHP;

- Introduction of visual, audible, or atmospheric elements that are out of character with the property or changes that may alter its setting;

- Neglect of a property resulting in its deterioration or destruction; and

- Transfer, lease, or sale of a property without adequate provisions to protect its historic integrity.

Consultation among the Navy, Port, and SHPO to comply with Section 106 of NHPA must be concluded prior to the completion of the Final EIS/EIR for this project. This consultation will address the adverse effects to National Register or eligible properties within the area of potential effect and will attempt to reach agreement on appropriate mitigation. Cultural resources that do not qualify for inclusion in the National Register, including properties of state, local, and national significance, also may be impacted adversely by the proposed undertaking. However, because the properties do not meet the minimum qualifications for inclusion in the National Register, the impact to such properties is not taken into account in the NEPA process.

5.1.4.2 Significant Impacts

Impact 1: Demolition of Historic Buildings and Structures in the Naval Supply Center, Oakland Historic District. Historic properties are located on both reversionary and nonreversionary Navy land. In analyzing impacts to historic properties, the entire base should be considered. The Maximum Marine/Maximum Rail Alternative could adversely affect NRHP-eligible properties because an undertaking is considered to have an adverse impact when the effect on a historic property may diminish the integrity of that resource. The transfer, lease, or sale of a property from federal ownership without adequate restrictions or deed covenants to ensure preservation is an adverse effect and would be a significant and mitigable impact. This impact would apply to all FISCO contributing buildings and structures within the NRHP-eligible Naval Supply Center, Oakland Historic District.

Under the Maximum Marine/Maximum Rail Alternative, the Port may demolish all or nearly all contributing buildings within the Naval Supply Center, Oakland Historic District. This demolition will complete a program that began in 1994, through which much of the Naval Supply Center, Oakland Historic District would be demolished to make way for expansion of the Port.

In 1994, the Navy, the Port, the State Historic Preservation Officer (SHPO), and the Advisory Council on Historic Preservation (ACHP) executed a Memorandum of Agreement (MOA) pertaining to leasing up to approximately 220 acres of the 528-acre FISCO to the Port. The MOA accepted demolition of any buildings within 190 of the 220-acre existing lease area, which concerned both reversionary and nonreversionary Navy property. This adverse effect was accepted because the Navy planned to retain original older parts of the base that contained the permanent structures, as well as a representative sample of the temporary warehouses built during the war in a tight cohesive district.

The MOA called for mitigation measures, including recordation of selected buildings to the standards of Historic American Building Survey (HABS), preparation of a Historic Archeological Resource Protection Plan (HARP) plan for the remainder of the base, and other mitigation measures. Some of these measures were implemented, including HABS recordation of all contributing buildings, including areas not covered by the lease (Wall, L., July 15, 1996, personal communication). Others measures, however, were interrupted by the decision in 1995 to close the base, an action that rendered many mitigation measures unnecessary or even counterproductive. The demolition accepted under the 1994 MOA will effectively destroy much of the Naval Supply Center, Oakland Historic District, resulting in demolition of 39 of the 84 contributing buildings. The Maximum Marine/Maximum Rail Alternative would result in an adverse effect and a substantial adverse change to this historic property that could be mitigated for the purposes of NEPA.

The following mitigation represents a range of options available to the Port that may be selected to reduce this impact to a level that is not significant. However, these measures may be revised or additional measures may be formulated during the next tier of environmental review.

Mitigation 1. The Navy has initiated consultation with the SHPO and the ACHP to amend the terms of the 1994 MOA for leasing all of FISCO and the eventual disposal of FISCO to the Port. The revised MOA need only be signed by the Navy and the Council to be valid and to satisfy Section 106. The Port has met with the Oakland Landmarks Preservation Advisory Board to revise the mitigation measures that will take into account the larger areas of impacts associated with Navy disposal of all of FISCO. This consultation will consider the position of interested parties. The Oakland Landmarks Preservation Advisory Board, the Navy, and the Port have agreed to the following measures to include in a revised MOA:

- The Port shall continue to provide publicized tours, led by docents and in coordination with the Navy, as long as practicable and safe for public access to FISCO. Publicity for tours will be disseminated as widely as possible, including press releases to local media, announcements on KTOP (City of Oakland channel) and other public access stations, and coordinated publicity with the Oakland Tours Program and Oakland Heritage Alliance;

- The Port shall continue to demolish FISCO structures in phases;

- The Port shall develop, publicize, and disseminate a documentary video to preserve the history and significance of FISCO. As part of the production, the Port shall implement a one-time distribution and outreach program, which will include producing, packaging, and distributing tapes and viewer guides and a professional good faith effort to pursue television or nontheatrical distribution of the video;

- The Port shall prepare a movable exhibit commemorating FISCO and its place in Oakland history. The Port also shall provide prominent dedicated exhibition space at the Oakland Airport, as part of a program with the collaboration of and consultation with the Oakland Museum. The exhibit at the airport will provide space for revolving exhibits related to Oakland's cultural history. The Port also shall work with the museum and other agencies to present the FISCO exhibit at other appropriate locations on an ongoing basis;

- The Port shall include in the design and development of the public access areas at FISCO a structure, land form, or landscaping feature that captures in true scale the enormity of the facilities and activities required for FISCO's historic function. The Port shall share design concepts and shall consult with the Oakland Public Art Advisory Commissions, the Oakland Landmarks

Board, Oakland Heritage Alliance, ProArts, and the West Oakland community prior to final design;

- The Port shall prepare and submit an application to the State Historic Resources Commission to designate FISCO as a State Historical Point of Interest and to incorporate a recognition of this designation into the public access area; and

- The Port shall allow the three officers quarters buildings to be moved off-site and reused by nonprofit or other community-based organizations at no charge for a period not to exceed three months prior to demolishing the buildings.

The Port, Navy, and the Oakland Landmarks Preservation Advisory Board reached agreement on these measures in early December 1996 (see Appendix G). The Navy will prepare recommendations to other parties to the agreement for amending the MOA. The amended MOA will be included in the Final EIS/EIR for this undertaking.

Implementing the stipulations in the amended MOA, Mitigation 1, would reduce this impact to a level that is not significant.

Impact 2: Demolition of Historic Buildings and Structures in the Southern Pacific West Oakland Shops Historic District. The Maximum Marine/Maximum Rail Alternative would require reorganization of the Southern Pacific West Oakland Railyard. This also would result in an adverse effect to four NRHP-eligible buildings located in the southern subdistrict of the Southern Pacific West Oakland Shops Historic District. Although four buildings in the northern subdistrict of this historic district already have been demolished as part of the Cypress freeway project, demolition of the four contributing buildings in the southern subdistrict would result in an adverse effect and a substantial adverse change to this historic property that could be mitigated.

The following mitigation represents a range of options available to the Port that may be selected to reduce this impact to a level that is not significant. However, these measures may be revised or additional measures may be formulated during the next tier of environmental review.

Mitigation 2. Options for mitigating adverse effects to buildings and structures in the Southern Pacific West Oakland Shops Historic District are similar to those identified for the Cypress Freeway project in Section 3.4. These four buildings could be marketed for relocation and use off-site or, alternatively, recorded to the standards of HABS/HAER prior to demolition. Specific mitigation measures will be identified during subsequent consultation and coordination among ACHP, SHPO, the Port, and the Southern Pacific Railyard, and will be addressed as part of future project-level environmental documentation. Implementation of

Mitigation 2 in a manner consistent with federal laws and regulations would reduce these impacts to a level that is not significant.

Impact 3: Demolition of the North Training Wall. The Maximum Marine/Maximum Rail Alternative would require extensive work in the Union Pacific Intermodal Yard, leased from the Port, just south of FISCO. There is only one historic property in the area, the north training wall, which is visible for about 2,400 feet on the western end of the Union Pacific track area at the edge of the Oakland Inner Harbor. Although it acts as a containment dike for fill in the Union Pacific Railyard, the wall itself is presumed to be owned by the US Army Corps of Engineers. Under The Maximum Marine/Maximum Rail Alternative, new marine terminals would be created on the north side of the Oakland Inner Harbor, requiring demolition of most visible elements of the north training wall. This demolition would result in an adverse effect and substantial adverse change to this historic property; this change is considered a significant impact that could be mitigated.

The following mitigation represents a range of options available to the Port that may be selected to reduce this impact to a level that is not significant. However, these measures may be revised or additional measures may be formulated during the next tier of environmental review.

Mitigation 3. Mitigation options for this adverse effect are limited. If the demolition is total, the only available mitigation measure is recordation of the features to the standards of the Historic American Engineering Record prior to demolition, under conditions set forth by the National Park Service. If some visible elements of the north training wall remained after project completion, those remnant elements could be restored or interpreted as part of a program to mitigate adverse effects on the remainder of the wall. Specific mitigation measures will be identified during subsequent consultation and coordination among ACHP, SHPO, the Port, and Army Corps of Engineers and will be addressed as part of future environmental documentation. Implementing Mitigation 3 in a manner consistent with federal laws and regulations would reduce these impacts to a level that is not significant.

5.1.4.3 No Impacts

Demolition of Historic Buildings and Structures in the Oakland Army Base Historic District. The Maximum Marine/Maximum Rail Alternative would have no impact on the Oakland Army Base Historic District. It would not involve any use of the Knight Yard nor would it require demolition of any contributing buildings within the historic district. The Navy has no disposal authority over the Oakland Army Base property.

Don Gary Investments, Ltd., and Space Assignment Leases. Because no historic buildings and structures were identified on the Don Gary Investments, Ltd., and Space Assignment Port properties, reuse of FISCO and surrounding properties

(under all four Port reuse alternatives) is judged to have no impacts on these resources.

Prehistoric, Native American, and Historic Archeological Resources. The Maximum Marine/Maximum Rail Alternative would have no impact on prehistoric, Native American, or historic archeological resources listed in or eligible for the NRHP because no such resources are known to exist within the boundaries of the project site (Hagel 1996). The probability for encountering unrecorded resources is considered to be very low. However, should previously unknown surface or subsurface prehistoric, Native American, or historic archeological resources be discovered during future ground disturbing activities, all work should stop pending documentation and evaluation of the resource by a qualified archeologist.

5.1.5 Visual Resources

The ROI for visual resources includes a generalized viewshed extending out to a maximum of five miles but is limited in places by terrain and structures, for example Yerba Buena Island and the Oakland Bay Bridge to the north, the I-580 and I-980 freeways to the east, and downtown Oakland to the southeast. The ROI extends farthest to the west and south towards the southern San Francisco waterfront, Hunters Point, and northern Alameda. Since visual resources are located on nonreversionary Navy property, reversionary Navy property, and non-Navy land, impacts potentially could occur on all three areas of the project site.

5.1.5.1 Significance Criteria

Visual resources were qualitatively evaluated by assessing the nature and extent of change in existing landscape character. The analysis addresses landscape modifications as seen from viewpoints within the ROI. An impact is considered significant if any one of the following occurs:

- It would noticeably increase visual contrast and substantially reduce scenic quality, as seen from any high sensitivity foreground or middleground viewpoint;

- It would block or disrupt existing views or reduce public opportunities to view scenic resources; or

- Visual resource conditions conflict with policies and regulations governing aesthetics.

Impacts can be either adverse, if they degrade scenic qualities, or beneficial, if they enhance scenic qualities. Temporary visual effects that last three years or less, such as construction effects, are not considered to be significant. Given the programmatic nature of the project alternatives, only a general idea of visual components and resulting potential visual contrasts of each alternative can be provided at this time. Where necessary, assumptions on the visual character of the project components have been provided for individual alternatives.

5.1.5.2 Significant Impacts

Impact 1: Off-site Views from Alameda Shoreline. The Maximum Marine/Maximum Rail Alternative could affect off-site views of the project site from existing public access points along the Alameda shore of the Oakland Inner Harbor. The new marine terminal development would change the industrial character along the waterfront where Union Pacific operations currently occur. However, similar views of marine terminals, such as cranes, container storage, and berthed vessels, can be obtained now at the Middle Harbor and Howard Terminals; the high cranes, in particular, are easily recognized symbols of the Port and are way-finding landmarks.

The proposed marine terminals could add additional visual contrasts and block scenic views of key features of San Francisco Bay, such as the eastern span of the Bay Bridge, Yerba Buena Island, and Mt. Tamalpais in westward views from the Alameda shoreline immediately west of the ferry terminal site. This part of the Alameda shoreline is not a designated scenic viewpoint, but is used for a variety of recreational uses, including jogging and dog walking. This would be a potential significant but mitigable impact.

Mitigation 1. Setback the marine terminals from the northern shore of the Oakland Inner Harbor, as proposed under the Reduced Harbor Fill Alternative. This setback would reduce the amount of visual obstruction of Yerba Buena Island and Mt. Tamalpais to a not significant level. Implementing Mitigation 1 would reduce this impact to a level that is not significant.

Impact 2: Loss of Visual Access from Middle Harbor Park. Eliminating Middle Harbor Park and pier, even though they are small (about one acre), are not heavily used, and are in relatively poor condition, would remove all public access and visual access to the Oakland Inner Harbor from the Oakland side for almost two miles, between existing access near Jack London Square and the Western Pacific mole. Public views of the Oakland Inner Harbor, Alameda, and beyond towards the San Francisco/Peninsula skyline would be lost in this area. This would be a significant but mitigable impact.

Mitigation 2. The public access component proposed for the Maximum Marine/Maximum Rail Alternative would create approximately 29 acres of replacement park and recreation facilities and enhanced viewing opportunities, including a shoreline pedestrian and bicycle path from Port View Park to the Western Pacific mole along the perimeter of Middle Harbor. Implementation of this plan would provide more open and spectacular views of Bay Area landscape features than those currently observable at Middle Harbor Park. Implementing Mitigation 2 would reduce this impact to a level that is not significant.

5.1.5.3 Not Significant Impacts

Increased Light and Glare. Proposed high-mast floodlighting in the marine and rail terminal areas at night could be visible to West Oakland and other nearby

residents within one mile of the project site. This would be particularly likely in the vicinity of Peralta Street, 3rd Street, and 5th Street in West Oakland and for approximately 10 to 15 homes at NAS Alameda nearest the Main Street entrance. The view corridor down Peralta Street focuses upon any visible light source at night.

However, currently visible from these neighborhoods are lighting along Middle Harbor Road and lighting within Port terminals in the Middle and Outer Harbors and within the Southern Pacific Railyard. In addition, soundwalls are planned at intermittent locations along the proposed Cypress Freeway that is being constructed between the West Oakland neighborhood and the project site; these soundwalls would further block light and glare generated at the project site and surrounding environs. Therefore, assuming that the design and placement of additional lighting does not substantially alter the type and intensity of light and glare, relative to existing conditions, this is considered a not significant impact.

Views from Jack London Square Area. Effects on off-site views from Jack London Square and vicinity would not be significant, due to screening by intervening buildings and the viewing distance of at least one mile. Only the new cranes at the proposed marine terminals along the Oakland Inner Harbor would be visible but would be seen in the context of more prominent existing cranes at the Howard and Middle Harbor terminals.

Views from Port View Park. Off-site views to the south from Port View Park are focused on the FISCO wharves. Removal of berthed vessels and cranes on maritime administration ships (which are visually distinct from marine terminal cranes) would reduce the visual variety in this view. The proposed bay fill and realignment of Middle Harbor Road at the water's edge could create visual contrasts in foreground views, depending upon its design. These would be adverse but not significant impacts.

In addition, demolition of FISCO buildings seen in the foreground and multi-story warehouses would be beneficial, as would potential landscape improvements at the Western Pacific mole to be designed as part of the public access component for the Maximum Marine/Maximum Rail Alternative. Foreground and middleground views of the proposed marine terminal cranes would introduce additional visual contrasts, similar to other larger cranes within view elsewhere in the Port but would not block views of the City Center or East Bay hills and would add to the visual interest in this Port-related use area.

Views from Major Transportation Corridors. Effects on off-site views from transportation routes, notably from the Bay Bridge, I-880 Cypress Freeway, BART, and Amtrak, would be of short duration and would not significantly alter the existing industrial and maritime character of the area. The potential exists for the overall image of the area to be enhanced from closer vantage points, such as BART, Amtrak, and the I-880 Cypress Freeway near 3rd and 7th Streets, through

demolition of existing deteriorating facilities and consolidation/design of more modern facilities.

Views from West Oakland and Alameda Neighborhoods. Views from West Oakland neighborhoods during the day would not be significantly affected due to the separation caused by the I-880 Cypress Freeway, now under construction. The cranes at the new marine terminals would be visible in some views from West Oakland and Alameda but would not substantially alter the character of views from this area.

Views of Rail Terminal Control Tower. Construction of a six-story control tower near the northern boundary of the proposed intermodal rail terminal would be visible from 7th Street and the BART tracks but would not be visually dominant from highly sensitive viewpoints, such as within the West Oakland community. Depending upon its design and location, the tower could become a beneficial feature and landmark for orientation within the predominantly industrial and undistinguished landscape of the rail terminal.

Loss of Distinct Landscape Features. According to the revised historic mitigation plan for FISCO, the three FISCO officers quarters will be made available for off-site removal and reuse by nonprofit or other community-based organizations. Loss of the remaining mature landscaping and officers quarters near the Oakland Middle Harbor would eliminate the most distinctive landscape features at FISCO and would reduce overall scenic quality. However, loss of these resources, located on reversionary Navy property, is not considered a significant impact because these resources are not visible to the public and are not unique within the East Bay region.

Four NRHP-eligible historic buildings will be removed from the Southern Pacific railyard property under the Maximum Marine/Maximum Rail Alternative. The loss of these four buildings and the distinctive overhead electrical transmission line towers, known locally as "lattice poles," is not considered significant because they cannot be seen by the public and are located in an industrial context of low landscape quality. However, it is recommended that prior to demolishing the transmission line towers, the potential for restoration or relocation of these towers be examined in collaboration with the local group, Friends of the Lattice Poles.

Consistency with Plans and Policies. Depending on its design, the proposed Middle Harbor public access component would be generally consistent with the San Francisco Bay Conservation and Development Commission (BCDC) Bay Plan. The landscape master plan for this area should incorporate BCDC Public Access Design Guidelines and the General Development Guide principles.

The implementation of Policy 5 (b), encouraging public access and views of port activity through openings between facilities toward the waterfront from nearby roads, may not be feasible for considerable lengths along the proposed Middle

Harbor Road alignment. However, this would be compensated for by new Oakland Middle Harbor viewing opportunities at the west end of the proposed Middle Harbor Road and by enhanced viewing opportunities elsewhere in the Middle Harbor area. No other conflicts with policies and plans regarding visual and urban design issues have been identified. This is considered a not significant impact.

5.1.5.4 No Impacts

Public Access to the Oakland Middle Harbor Shoreline and New View Opportunities. Providing public access to the Middle Harbor shoreline and creating new viewing opportunities, some with dramatic panoramic views of high visual interest, represents a beneficial impact. The appropriate design for safe and aesthetically pleasing public access, recreation facilities, vista points, and habitat enhancement will be developed with input from the local community and recreational users. To maximize the beneficial effects of the Middle Harbor public access program, it is recommended that the Port establish vegetation along the perimeter of the Middle Harbor to filter views of the proposed marine terminal container storage area from proposed public access off 7th Street. With careful site design sensitive to on-site and off-site visual receptors, there would be no impact as a result of these project improvements.

5.1.6 Biological Resources

The ROI for biological resource impacts includes the project site, adjacent waterways, and areas within a half-mile of the edge of the site. These off-site resources may indicate the potential for sensitive species and habitats on the site. All impacts are analyzed against conditions existing at the site in 1996 and are based on the Port's conceptual reuse plan, including the Marine Habitat Enhancement Area (MHEA), proposed as part of the Middle Harbor public access components described in Chapter 2. Where feasible and appropriate, impacts on nonreversionary Navy property are distinguished from those on reversionary Navy property and non-Navy property.

The four proposals for the MHEA involve filling all or part of the Middle Harbor to an average depth of negative five to six feet below MLLW, a depth range consistent with natural bay conditions in the Alameda county area. Filling the Middle Harbor also moves the bottom substrate into the zone in which light can support net photosynthesis, thus improving the area's potential for supporting aquatic plants. The habitats and associated general benefits planned for the MHEA in one or more of the reuse alternatives are listed below.

- *Eelgrass beds.* The beds would be established in shallow water on sand or mud substrata to provide structure for diverse invertebrate communities, nursery areas for fish, and a detrital food source. The presence of juvenile and larval fish associated with this habitat type is likely to benefit least tern foraging in the area.

- *Intertidal mudflats/sandflats.* Mudflats would provide a substrate for typical benthic fauna of central San Francisco Bay and foraging areas for shorebirds, marine ducks, and fish (e.g., flounders, rays, and surf perches, some of which may already be present in the Middle Harbor). Sandflats provide similar habitat to mudflats but are not as supportive of the levels of species diversity and abundance. Most of the biota would be found toward the low tide line.

- *Intertidal rocky substrata.* Rocky bottom structures would provide habitat for fish and invertebrates, attachment sites for macroalgae that could, in turn, provide forage for marine ducks. Pacific herring are likely to spawn in this habitat. Currently this type of habitat is located along the edges of the harbor and is limited by the vertical alignment of the harbor walls. A more horizontal slope would provide more habitat over a greater surface area.

- *Subtidal rocky substrata.* Artificial rock reefs built up to mean sea level would provide opportunities for colonization by rockfish, sculpin, and other fishes. Similar to intertidal rocky substrata, rock reefs would provide attachment sites for macroalgae and Pacific herring spawning sites. Rock reefs can also be used to help stabilize the edges of shallow mudflats, especially near dredged channels.

- *Islands.* One or more small islands could be built with riprap or rubble bases, covered with sand and stabilized with beach grass. An island would provide a semi-isolated patch of habitat with limited human and predator disturbance. Shorebirds and other marine birds might be attracted to a small island for roosting, and fish would be attracted to the base for its similarity to rock reef habitat.

- *Deep holes and channels.* Deeper areas in the basin will increase the diversity of habitats present. Deep holes could be used to isolate shallow water habitat from the public access beaches. These holes also may provide deep water shelter from avian predators for schooling fishes, provide habitat for larger fish species, such as flounder and halibut, and act as sediment traps that could preserve depths and habitat. These areas may influence circulation patterns, thereby reducing sedimentation in the basin and improving circulation in the areas of eelgrass beds. However, these structures would require dredging or filling to retain their function.

5.1.6.1 Significance Criteria

Significance criteria used to evaluate impacts to biological resources are derived from legal requirements to protect sensitive species and habitats and from the extent to which that resource elicits concern among natural resource management agencies or scientific authorities.

Determination of significant impacts to biological resources includes both direct and indirect impacts. Direct impacts are those in which activities reduce or remove a biological resource, such as the results of construction or grading, while indirect impacts could occur when the activity causes other actions that affect biological resources. Impacts can be short-term or long-term.

Special Status Species

Impacts to special status species are considered significant if the action results in one or more of the following:

- Harm to, harassment of, destruction or loss of any endangered, threatened, or rare species under federal or California law;

- Modification or destruction of the above species' habitats, migration corridors, or breeding areas; or

- Loss of a substantial number of any plant or animal species that could affect abundance or diversity of a rare, threatened, or endangered species beyond normal variability.

Impacts to listed species can be significant if the survival and reproduction of the species is in immediate jeopardy or if environmental pressures could cause its low numbers to drop to endangered or threatened levels. Otherwise, impacts on nonsensitive species (i.e., candidate species with no other protection, California species of special concern, or California Native Plant Society listed species) would be considered adverse but not significant.

Sensitive Habitats

Significant impacts could result from the measurable degradation of sensitive habitats, habitats that support species listed or proposed for listing under the federal or state Endangered Species Acts, and habitats in which diverse and productive natural communities are established. The eelgrass beds in waters adjacent to the project site may belong to the latter category because of their potential for providing habitats for invertebrates and for providing foraging, spawning, and nursery areas for fish species. However, the existing eelgrass bed in the Inner Harbor Channel is of limited size and consists of several noncontiguous patches. This bed is not considered to be of high value as habitat for fishes.

Nonsensitive Species and Habitats

Populations of plants and animals and the diversity of species within communities fluctuate naturally. Impacts to nonsensitive vegetation, communities, and wildlife species at the site would not be considered significant unless an action could substantially disturb an ecosystem beyond normal variability or if the habitat is protected by federal, state, or local laws. Much of the project site is intensively developed and does not support significant biological resources. These areas are currently urbanized and future use will probably continue this pattern.

5.1.6.2 Significant Impacts

The following section describes those significant impacts to special status species, sensitive habitats, and nonsenstive species and habitats.

Special Status Species

Impact 1: Potential Loss of Least Tern Foraging Habitat. Short-term turbidity under the Maximum Marine/Maximum Rail Alternative associated with dredging and construction of new berths in the Oakland Inner Harbor could impact the endangered California least terns' ability to find food in the Oakland Inner Harbor. Increased water turbidity could decrease the visibility of fish at the surface of the Oakland Inner Harbor. Increased turbidity also could discourage the terns' prey fish from entering the channel, thereby decreasing the supply of available fish during dredging and construction activities (see Not Significant Impacts, Displacement of Fish Populations).

Terns were observed foraging in the Oakland Inner Harbor for about two to three percent of their foraging time, on average, during studies over a ten-year period (US Navy 1984, 1985, 1986a, 1987a, 1988a, 1990b, 1992a, 1993, 1995a). Foraging activity appears to be localized to the mouth of the channel and two small areas of rock rubble on the south side of the channel to the west and east of the main entrance to NAS Alameda. These areas are located some distance from the proposed construction activities. Other portions of the Inner Harbor channel appear to be relatively little used by the least terns, possibly as a result of its depth. Although unrelated to the Port's proposed activities, reductions in food availability in 1994 and 1995 (US Navy 1995a) could indicate a trend that would add to the affects of adverse foraging impacts on the terns during the nesting season.

Activities resulting in increased turbidity are expected to be localized and of limited duration. The magnitude of the turbidity will be dependent, in part, on the number and type of dredges working at a given time, their locations, and measures implemented to reduce turbidity. Dredging and construction will take place only along the northern shore of the Oakland Inner Harbor in areas removed from least tern foraging activity near the mouth and across the channel on the south shore. Also, dredging activities most likely will be associated with deeper portions of the water column and are not expected to impact the shallow foraging areas. Furthermore, the USFWS determined that previous dredging activities in the Oakland Inner Harbor, including the 42-foot dredging project, have not posed a threat to least tern foraging activity (USFWS 1994c).

Because of the endangered status of the least tern, any impacts may be considered potentially significant. However, the proposed dredging and construction activities are not expected to affect the least tern foraging areas because they are distant from the foraging sites, they are of short duration, and they are mitigable. In addition, the potentially affected foraging areas represent only a fraction of the tern's foraging activity.

The following mitigation represents likely options available to the Port that may be selected to reduce this impact to a level that is not significant. However, these measures may be revised or additional measures may be formulated during the next tier of environmental review.

Mitigation 1. The Port shall undertake informal discussions with the USFWS and the US Army Corps of Engineers to assure that terminal construction and dredging does not pose significant, adverse impacts on least tern foraging. To prepare for this consultation, the Port may conduct a least tern survey along the Inner Harbor Channel during their breeding season or turbidity studies to determine the effects of construction disturbance on tern feeding behavior. If, as a result of these studies, it is determined that the project could have a significant impact, specific mitigation measures will be implemented.

The focus of the proposed mitigation is to minimize the turbidity associated with dredging activities and to minimize in-water construction activity during the nesting period of the least tern. The Port currently has in place, and requires implementation of, best management practices to control turbidity and to increase dredging efficiency. Appropriate management practices could include increasing cycle times, limiting the number of concurrent dredging operations during least tern nesting season, or implementing engineering measures to reduce turbidity, such as silt curtains, or using appropriate dredging techniques.

The proposed MHEA under the Maximum Marine/Maximum Rail Alternative is planned to include eelgrass habitat, submerged and intertidal on soft bottom habitat, and other biological enhancements that would provide spawning and foraging habitat for fish species that are preyed on by California least terns, such as Pacific herring, topsmelt, surf perch, gobies, and jacksmelt (Heib 1996). Establishing the MHEA would provide long-term mitigation for any short-term impacts.

Implementing all or a combination of options under Mitigation 1 would reduce this impact to a level that would not be significant.

Impact 2: Potential Loss of Burrowing Owl Habitat at Middle Harbor Park. Development of Middle Harbor Park could remove potential burrowing owl habitat. If burrowing owls, a California Species of Special Concern, are found at the project site, implementation of the Maximum Marine/Maximum Rail Alternative would result in displacement of this species. This impact is considered potentially significant and mitigable.

The following mitigation represents likely options available to the Port that may be selected to reduce this impact to a level that is not significant. However, these measures may be revised or additional measures formulated during the next tier of environmental review.

Mitigation 2. The Port shall conduct a survey for burrowing owls in accordance with Fish and Wildlife Service and California Fish and Game guidelines prior to initiation of construction activity. If individuals or colonies of burrowing owls are identified at Middle Harbor Park, this area should be avoided, to the extent practical and feasible. If avoidance is not possible, a mitigation program consisting of relocating the birds to a suitable location would need to be developed. Burrowing owls may be relocated to a suitable location nearby, possibly within upland areas of the proposed Middle Harbor public access area. Relocation could require management, including predator control and food supplements. Implementation of Mitigation 2 would reduce this potential impact to a not significant level.

Sensitive Habitats

Impact 3: Removal of Eelgrass Beds. Construction of the proposed marine terminal would remove the approximately 45 square foot eelgrass bed within the Oakland Inner Harbor. Filling the Oakland Middle Harbor could result in sedimentation of the approximately 200 square foot Oakland Middle Harbor eelgrass bed. This impact is considered to be potentially significant and mitigable. The significance of this impact will be determined through consultation with appropriate resource agencies, including the US Army Corps of Engineers. This impact would occur in waters that are non-Navy property.

The following mitigation represents likely options available to the Port that may be selected to reduce this impact to a level that is not significant. However, these measures may be revised or additional measures may be formulated during the next tier of environmental review.

Mitigation 3. The Port shall undertake informal consultation with appropriate resource agencies to determine if this potential impact is significant. If, as a result of this consultation, it is determined that the project could have a significant impact, mitigation measures will be implemented.

Loss of the Oakland Inner Harbor eelgrass bed would be mitigated fully by the successful development of compensatory wetlands planned by the Port of Oakland for the MHEA. As part of the MHEA, the Port proposes to develop different habitat types, including eelgrass; a portion of the Western Pacific mole would be demolished, and the area around the existing Middle Harbor eelgrass bed would be leveled to encourage this eelgrass to spread. The Port plans to raise the level of the Oakland Middle Harbor bottom to five to six feet below MLLW. A portion of this area could be used beneficially to establish new eelgrass.

The Port has not arrived at a size for the area in which to attempt transplants; however, successfully establishing one acre would result in a mitigation ratio of more than 20:1 for the loss of the Oakland Inner Harbor channel bed. In addition, silt curtains may be used to prevent sedimentation of the Middle Harbor bed. Alternatively, the area around the bed may be marked off to prevent

construction crews from depositing fill in areas that may adversely impact the eelgrass bed. Implementation of Mitigation 3 would reduce the impact to a level that is not significant.

5.1.6.3 Not Significant Impacts

Special Status Species. California brown pelicans roost off the west corner of the NAS Alameda Island breakwater, about two miles from the project site. Construction and dredging may result in minor relocation of foraging activities of individuals that visit the project site. This does not constitute a significant impact and does not require mitigation. Better quality and more commonly used foraging habitat adjacent to the NAS Alameda Breakwater Island is available nearby for this species. This is considered a not significant impact.

Individual American peregrine falcons forage in the Central Bay and nest on the Bay Bridge and Golden Gate Bridge. This species may hunt over the water and land portions of the project site. However, the habitat usage of its common prey species and the developed nature of its existing habitat indicate that it is unlikely to be affected by the proposed project plans. This is considered a not significant impact.

Although the National Marine Fisheries Service (NMFS) reports that individual winter-run Chinook salmon may occur at the project site, they are most likely to have strayed from their migration route (the Pacific through the bay to the Sacramento River). Minor relocation of stray individuals of this species as a result of avoidance of turbidity does not constitute a significant impact and does not require mitigation because better quality habitat is available locally for this species.

Nonsensitive Species and Habitats. Spawning activities of Pacific herring could be disrupted by increased sediment loads during marine terminal construction. Egg mortality could be increased by sedimentation. This impact is not significant given the herrings' abundance and availability of alternative spawning habitat. Furthermore, the California Department of Fish and Game (CDFG) has placed a permit restriction on the Port's berth-side dredging operations. No dredging along the shoreline will occur during the main portion of the herring spawning season between January and April under any but emergency circumstances. Dredging has been allowed during December under special circumstances, as long as a herring watch has been posted to ensure that herring have not begun to spawn. Dredging ceases if herring are observed during December. Dredging previously has been allowed in the middle of the channel throughout the spawning season. Also, implementing the MHEA would provide improved spawning habitat.

Benthic invertebrate species would be removed as part of the dredging process and are not considered sensitive or unique within the project area. Mobile species, such as fish, can avoid turbidity plumes. No sensitive marine or estuarine species (other than herring) have been identified or are likely to frequently occur in the

project area. Removal of benthic invertebrates as part of the dredging process is a not significant impact.

The placement of dredge or fill material suitable for unconfined aquatic disposal (SUAD) (specifically in Middle Harbor for the creation of habitat) could cause temporarily elevated levels of suspended solids and dissolved sulfides and could decrease dissolved oxygen levels. However, the environmental impacts of placing SUAD material in the Middle Harbor are not significant to benthic invertebrates and fish.

Displacement of Fish Populations. Construction of five new berths along the northern border of the Oakland Inner Harbor would increase turbidity, noise, and vibrations in the short-term, temporarily disturbing benthic habitat and fish food. Increased suspended solids in dredging areas could affect levels of dissolved oxygen in the water column, could decrease visibility for foraging fishes, or could impair oxygen exchange due to clogged or lacerated gills (US Army 1994). Fish may avoid these areas during periods of high turbidity. These short-term impacts may result in a temporary and local displacement of fish. This is not a significant impact and does not require mitigation.

5.1.6.4 No Impacts

Marine Habitat Enhancement Area. Implementing the MHEA proposed as part of the public access plan for the Maximum Marine/Maximum Rail Alternative would create a beneficial environment for enhanced marine and biological resources. The proposed habitats and public access options are presented to illustrate the range of potential modifications that may be made. Further refinement of the MHEA will be accomplished after incorporating public and resource agency comments. A brief evaluation of this MHEA follows.

The Maximum Marine/Maximum Rail Alternative provides a combination of habitat creation and public access options. Under the Maximum Marine/Maximum Rail Alternative, a portion of the Western Pacific mole would be demolished to become an intertidal area. This area could be used to create an intertidal rocky habitat. The area on the northwestern portion of this mole may be filled to an appropriate depth to encourage the existing eelgrass to spread. The plan also calls for creating a marina and boat launching ramp that probably would require a maintained channel to allow boat access at all tidal levels. The channel probably would travel along the northwest edge of the eelgrass bed, limiting its expansion. Boat traffic could create disturbances, such as wakes or propeller scarring that would limit or destroy eelgrass in that area.

The area to the north of the marina is identified as a sand perched beach to be used for human activities. Depending on the type of fill used, a sandflat or mudflat may be located to the western end of the MHEA. The best area for habitat creation is located in the north basin, relatively distant from recreational activities. Attempts could be made to establish eelgrass via transplants. It would be easy to establish

and maintain a shallow mudflat in the central portion of the area. Rocky reefs may be established along the north rim of the channel to stabilize it, and the adjacent mudflat and rocky-reef habitat could be used as the supporting structure of an island.

5.1.7 Water Resources

Water-related issues include stormwater runoff, surface water and ground water quality, and flooding potential. The ROI for water resources includes the project site and Oakland Outer Harbor, Middle Harbor, and Inner Harbor, associated channels, and the eastern side of the Central Bay. This area was selected because its quantity and quality of water resources could be significantly affected by elements of the project or, conversely, these water resources could pose a hazard, such as flooding, to subsequent uses. Impacts on nonreversionary Navy property are distinguished from those on reversionary Navy property and non-Navy property where feasible and appropriate. All impacts are analyzed against conditions existing at the project site in 1996..

5.1.7.1 Significance Criteria

A project may have a significant impact on water resources if it causes substantial flooding or erosion, if it adversely affects any significant water body, such as a stream, lake, or bay, if it exposes people to reasonably foreseeable hydrologic hazards, such as flooding or tsunamis, or if it adversely affects surface or ground water quality or quantity. The 100-year recurrence interval for floodplains, tsunami runup, and tidal flood hazards is used as the significance criteria for those aspects of this study. Significance of water quality impacts is based on the potential for substantial contributions to high levels of contaminants in stormwater runoff and bay receiving waters.

5.1.7.2 Significant Impacts

Impact 1: Pollutants in Runoff and Adjacent Waters. Use of the proposed marine terminal areas and rail terminal could introduce pollutants, including oil and grease, other hydrocarbons, various heavy metals, and other contaminants from transportation activities, into the runoff stream and adjacent bay waters. Pollutants can enter stormwater through disturbance of contaminated soils, increased impervious surfaces on which contaminants are deposited, and increased contamination generated by proposed new or expanded uses. The primary sources of contaminants from expanded rail and maritime container freight uses are materials leaking from containers, equipment leaks and vehicle spills, and contaminants generated from washing and cleaning containers, vehicles, and equipment.

Compared to existing on-site activities associated with the Harbor Transportation Center, where there are numerous independent trucking and storage facilities, future on-site marine terminal operators (a maximum of five) likely would operate a much smaller fleet of vehicles, such as trucks and Port "packers" for storing containers. Under existing conditions, dozens of trucking operators perform

vehicle maintenance without adequate facilities to assure proper containment of potential contamination. Under a best-case scenario, most vehicles owned and operated by the proposed marine terminals probably would be maintained on-site, with maintenance occurring at a single location designed specifically for that function. Therefore, project implementation could improve the quality of stormwater runoff from the site compared to existing conditions.

Stormwater contamination depends on land use type and intensity and on best management practices (BMPs). On the basis of land use type alone, the proposed development of railroad and marine terminals would be expected to potentially increase stormwater contaminants generated on-site, although much of this growth would occur at the Port even without implementing the Vision 2000 Program. Vehicle maintenance is one of the primary contributors to contamination of site stormwater. The Port has developed BMPs to control this source of contamination (see Appendix I). However, implementing BMPs is a long-term process, and contaminants still have been detected occasionally in site runoff. Under a worst-case scenario (i.e., if no improvements are achieved), this alternative could increase the levels of stormwater contaminants (oil and grease, lead, nickel, zinc, and other contaminants) from vehicle maintenance and operations on the site. This, in turn, would contribute to cumulatively significant contamination of Bay waters (see Chapter 6).

A well-designed facility incorporating BMPs, including those already developed by the Port for vehicle maintenance, could reduce the project's contribution of stormwater contamination to a not significant level. For example, to the extent that current vehicle maintenance activities are moved to off-site facilities, that source of contamination could be eliminated from the site. Therefore, this impact is considered potentially significant and mitigable through the incorporation of BMPs into project operations and possibly design, as well as effective elimination of non-stormwater discharges, as identified below.

The following mitigation represents a range of options available to the Port that may be selected to reduce this impact to a level that is not significant. These measures may be revised, or additional measures formulated during the next tier of environmental review.

Mitigation 1a. The Port's stormwater pollution prevention program shall be expanded to include the entire project site. Applicable proposed uses in that area shall be inspected for compliance with the stormwater management program and the Port's BMPs. The Port, in conjunction with the Regional Water Quality Control Board, shall assist tenants with identifying and implementing appropriate BMPs. Some specific stormwater management practices in vehicle maintenance areas identified in the Port's stormwater pollution prevention program are reiterated in Mitigations 1b, 1c, 1d, and 1e below.

Mitigation 1b. All washwater generated from industrial operations should drain to the sanitary sewer system. The Port shall assist future tenants in retrofitting the stormdrain and sanitary sewer system, if necessary, and developing and implementing operational and facility BMPs for controlling stormwater quality consistent with their stormwater management program and stormwater pollution prevention plan (SWPPP).

Mitigation 1c. The stormwater management conditions of Port tenants should include requirements for a spill response plan to mitigate the potential impacts of spills on water quality. Port leases with tenants should specify that all fueling and liquid material loading and unloading operations associated with truck or train operations shall be conducted at contained locations where any spilled liquids can be recovered before they enter the storm drain system.

Mitigation 1d. Port leases with tenants should specify that rail and ship terminal employees shall be properly trained and equipped to respond to any spills of liquids that could enter the storm drain system.

Mitigation 1e. Port leases with tenants should specify that all drum storage shall be indoors or in properly contained areas.

Mitigation 1f. The Port could evaluate the availability of land during the design phase of the Vision 2000 project for grassy swales or other vegetative-type controls to allow stormwater to infiltrate into the ground rather than run off the site. Vegetative controls could be incorporated into public access, recreation, and landscaped areas.

Implementing Mitigations 1a through 1f would reduce this impact to a level that is not significant relative to discharges from residential land uses.

Impact 2: Potential Water Quality Degradation from Dredging Contaminated Material. Depending on the quality, quantity, and location of dredging and dredged material reuse or disposal sites, several environmental impacts may occur (specific impacts attributable to reuse or disposal of dredged material are discussed under Impact 3). These impacts include increased levels of suspended solids and contaminants, and reduced oxygen levels in the water column. The potential and extent of these impacts can only be determined after project-specific sediment testing has been conducted, a disposal or reuse site has been selected, and the dredging methods have been determined. Sediment testing must be completed as specified under state and federal laws and guided by regional policies prior to receiving permits to dredge and reuse or dispose of material. Dredged material testing has not been completed for this project and therefore the potential for specific impacts due to chemical contamination or biological effects is unknown and cannot yet be addressed. Specific impacts will be addressed through subsequent project-specific environmental documentation.

Depending on the proposed method of disposal or reuse of the dredged material, specific sediment testing program(s) will be conducted. Testing can be tailored for the potential impacts at the specified disposal or reuse locations. For example, disposal in the aquatic environment requires tests different than disposal or reuse in various upland sites. Testing protocols must be approved by all reviewing agencies prior to conducting testing. In the San Francisco Bay Area, the agencies responsible for permitting dredging and dredged disposal projects have formed a Dredged Material Management Office (DMMO). This interagency workgroup reviews dredged material testing programs and testing results for their adequacy and suitability for disposal or reuse in the proposed locations.

Dredging projects cannot be approved without concurrence from all permitting and commenting agencies. Dredge material typically has been disposed of at one of three permitted in-bay disposal sites, such as the Alcatraz disposal site (SF-11) or in the San Francisco Deep Ocean Disposal Site (SF-DODS), 45 miles west of the Golden Gate. Material proposed for disposal at these sites is determined to be SUAD or not suitable for unconfined aquatic disposal (NUAD). Only SUAD material can be disposed of in unconfined aquatic sites. Suitability is based on the potential for significant adverse impacts at the disposal site due to both contaminant concentrations and biological effects. Biological effects include toxicity to sensitive marine species in the water column or on the bottom and bioaccumulation. Suitability determinations for unconfined aquatic disposal must be conservative since they result in disposal in sensitive and uncontrolled (i.e., dispersive) environments. NUAD determinations make no further judgment on the acceptability of the material for disposal or reuse in other environments. The reuse of NUAD material may be acceptable in upland construction and landfills or in confined aquatic sites. Depending on the concentration of contaminants, disposal-specific testing may be required.

Dredging of NUAD material, depending on the types and concentrations of contaminants, may cause significant impacts. Contaminants in sediments can be tightly bound to the particulates through a variety of physical processes. Tightly bound contaminants typically are considered insoluble, whereas contaminants that can be released from the sediments are called soluble. Soluble contaminants are typically of a greater concern since they are much more biologically active. The more biologically active a contaminant, the more toxic or bioaccumulative it can be. Insoluble contaminants also can cause biological effects, but typically the concentrations must be many times higher than soluble contaminants. Insoluble contaminants can cause biological effects through ingestion by sediment (deposit) feeding animals or by diffusion from the sediment (high concentrations) to the water surrounding the sediment (lower concentrations).

Typically, dredged materials with elevated contaminants are tested for water column toxicity (suspended phase testing). In addition, contaminant concentrations expected in the water column can be modeled to determine if water quality objectives may be violated outside the dredging "zone." These models

conservatively estimate that all the contaminants are soluble. Special chemical testing also can be done to determine the actual concentration of soluble contaminants. Sediments with soluble or high concentrations of contaminants may cause toxicity to animals in the water column near the dredging site. This could result in a potentially significant but mitigable impact.

The following mitigation represents a range of options available to the Port that may be selected to reduce this impact to a level that is not significant. These measures may be revised or additional measures may be formulated during the next tier of environmental review.

Mitigation 2. If, upon completion of dredged materials testing, contaminants are found to be soluble or at insoluble concentrations capable of causing unacceptable water column effects, the Port shall evaluate and adopt, as necessary, special precautions and measures prior to undertaking dredging. Typically, dredging contaminated sediments will require the use of special dredging equipment, such as an environmental or closed bucket. Closed clamshell buckets minimize the amount of sediment or water contaminated from the sediment from escaping. Contaminated material placed into a barge for transport are not permitted to overflow or to be filled beyond the level that may allow spillage during transport. Other dredging equipment is available, such as high solids slurry pumps, marine excavators, and silt curtains. The technology for dredging contaminated sediment continues to improve.

The Port shall evaluate existing and new technologies for safely dredging contaminated sediments, if needed, after sediment testing is completed and suitability determinations are made by the appropriate regulatory agencies. The Port shall select and implement the appropriate dredging technology suitable to the site-specific conditions and in accordance with future permit requirements to be imposed by the appropriate regulatory agencies. Implementing Mitigation 2 would reduce the potential for this water quality degradation impact to a not significant level.

Impact 3: Potential Water Quality Degradation from Reuse or Disposal of Contaminated Material. The Port is considering several options available for the disposal or reuse of any NUAD material encountered during project dredging. Since the primary environmental concern over NUAD material is biological effects, reusing material in an environment that isolates the contaminants from sensitive biological receptors would largely eliminate the concerns for the material. For example, contaminated sediments that are reused in landfills, such as road base or for other construction purposes, would be appropriate. In addition, the San Francisco RWQCB has issued guidance that outlines how some NUAD material can be reused in habitat creation projects, such as wetlands. NUAD material can be used as fill to create wetlands as long as adequate SUAD material is placed on top for chemical and biological isolation. Confined Aquatic Disposal (CAD) is

also a possible disposal and reuse option where contaminated sediments are contained and capped so they are not subject to disturbance.

A further concern regarding the disposal and reuse of NUAD material is the potential for contaminant mobilization and migration into sensitive areas. Special studies may be required to determine if the method proposed for NUAD disposal or reuse is safe. For example, chemical testing to determine the potential for contaminants to become mobile and move into nearby surface or ground water are required before permitting reuse in upland environments. Analysis of the potential for contaminants to leach through cap material would be required before permitting CAD disposal.

Other factors play a part in determining the appropriate NUAD reuse or disposal option. Factors such as the geophysical character of the material and its suitability for engineering purposes need to be examined. Since liquefaction is a key issue in the Bay Area, the material proposed for construction purposes must meet applicable standards to lessen the risk of severe seismic damage. If CAD disposal is used, the location and design of the CAD site also must be evaluated for seismic risk.

The volume of NUAD material also will determine the optimum reuse or disposal option. Small volumes of NUAD material may be best disposed of or reused as landfill cover material, whereas large volumes of NUAD material may be best incorporated into a CAD site.

The ultimate decision for the disposal or reuse of any NUAD material encountered during project dredging will be based on the following factors:

- Volume of NUAD material;
- Contaminant concentrations in the NUAD material (both soluble and insoluble);
- Engineering qualities of the material;
- Practicality of the disposal or reuse option; and
- Disposal or reuse site studies to determine risks and benefits.

Several special studies are required to determine the appropriateness of the CAD site location, the thickness of the cap required to prevent contaminant migration through to the overlying water body, and the cap thickness required to prevent organisms from burying into the contaminated material (bioturbation). An improperly designed and engineered CAD site can pose a significant impact to the environment.

The following mitigation represents a range of options available to the Port that may be selected to reduce this impact to a level that is not significant. These measures may be revised or additional measures formulated during the next tier of environmental review.

Mitigation 3. The Port shall prioritize NUAD material disposal so that construction reuse would be the first priority, followed by landfill disposal, and then CAD disposal.

If upland NUAD disposal (including construction reuse and landfill disposal) is used, the following measures could apply:

- Materials shall be tested prior to a final decision on NUAD material disposal being made.

- Disposal of NUAD materials shall be done in a manner that prevents long-term contaminant migration from the materials into stormwater or ground water.

If CAD is selected for some or all of the NUAD materials, the following measures could apply:

- The Port shall follow the joint EPA and COE guidance on design, engineering, testing, monitoring, and other studies required for locating and engineering a CAD site.

- The Port shall set appropriate goals for the design of the CAD site. For example, the goal of never exceeding water quality standards in the overlying water from diffusion of contaminants through the cap may be an appropriate goal. In any circumstance, the incorporation of a CAD site into the design for enhanced habitat should not be allowed to diminish the habitat goals.

- Since there is more than adequate volume for a CAD site in Middle Harbor, the Port shall add additional safety factors into the design. For example, if it is found that four feet of clean material is needed to meet the goals of the CAD site, a 100 percent safety factor (eight feet of cap) or more can easily be accommodated.

- Implement a CAD site only when the site is shown to be depositional and will remain depositional with the changed contour and circulation patterns.

- The Port shall commit to monitor and maintain the integrity of the site.

Implementing Mitigation 3 would reduce this impact to a level that is not significant.

Impact 4: Water Quality Degradation From Filling. Placing SUAD material in the aquatic environment (including in Middle Harbor for the creation of habitat) could cause elevated levels of suspended solids, dissolved sulfides, and decreases in dissolved oxygen levels. The potential and extent of this water quality impact can only be determined after project-specific sediment testing and biological analysis

has been conducted. Specific fill impacts will be addressed through subsequent project-level environmental documentation. Once these analyses are completed, the appropriate methods and technologies for filling these areas can be developed in a manner that would reduce any impact to a not significant level. This potentially significant and mitigable impact affects reversionary Navy property and other non-Navy property. This impact also is addressed in the Biological Resources section under Not Significant Impacts.

The following mitigation represents one of a number of options available to the Port that may be selected to reduce this impact to a level that is not significant. These measures may be revised or additional measures may be formulated during the next tier of environmental review.

Mitigation 4. One mitigation option could be that areas to be filled along the Oakland Inner Harbor for marine terminal construction shall be diked off from surrounding receiving waters (except for an opening to permit barge access) prior to filling. If, upon completion of sediment testing and biological analyses, it is determined that proposed fill activities in the Middle Harbor could significantly degrade water quality, the Port shall evaluate and adopt, as necessary, special precautions and measures prior to undertaking filling. The Port shall select and implement the appropriate methods and technologies for filling the Middle Harbor suitable to site-specific conditions and in accordance with future permit requirements to be imposed by the appropriate regulatory agencies. Implementing Mitigation 4 would reduce this impact to a level that is not significant

5.1.7.3 Not Significant Impacts

Increased Runoff and Ponding. The Maximum Marine/Maximum Rail Alternative would increase impervious surfaces adjacent to the Oakland Middle Harbor for the intermodal terminal. This would be partially offset by removing the existing Navy piers in the Oakland Middle Harbor and removing fill along the Oakland Inner Harbor, but there would be a net increase of about 37 acres of impervious surfaces that would increase runoff from the site. However, because the new impervious surface would be directly adjacent to the bay, this increased runoff would not have a significant impact on storm drain systems or any potential flood hazards. The new impervious areas would be located primarily on reversionary Navy property. This would alleviate any ponding problems in both reversionary and nonreversionary Navy property, as well as in other non-Navy portions of the project site. Recent storm drainage upgrades implemented on the Southern Pacific West Oakland Railyard have alleviated ponding problems on that property.

Ponding has occurred in the south-central portion of the Harbor Transportation Center area during periods of heavy rainfall. This ponding affected both reversionary and nonreversionary Navy property. Storm drain system upgrades and repairs in that area have eliminated ponding problems in that area of the project site. In addition, the Port plans to reconstruct the storm drain system on

FISCO and surrounding Port property as part of the Vision 2000 Program. Therefore, ponding is not considered a significant impact.

Tsunami Runup. Tsunami runup in the 500-year event or lesser tsunamis accompanying high tides, although unlikely, also could result in inundation of low-lying portions of the FISCO property and Union Pacific Intermodal Railyard (Ritter and Dupree 1972). This would be considered not a significant impact due to the infrequent occurrence of these events.

Flood Hazards to Low-lying Portions of the Project Site. As part of the Vision 2000 project alternatives, the Port would fill the lower portions of the project site to an elevation of about 12 feet above mean sea level (MSL). Although the flood potential at FISCO has not been mapped, elevations on surrounding lands are above the mapped 100-year flood elevation and are considered to be "areas of minimal flooding" (FEMA 1982). The surrounding lands are approximately the same elevation and as flat as the FISCO site.

New development would be required to conform with Oakland's Comprehensive Plan Environmental Hazards Element's policies regarding flood protection. In addition, if portions of the project site fall within a mapped flood zone, development within them would be required to comply with National Flood Insurance Program policies set by the Federal Emergency Management Agency. This would not be a significant impact.

Increased Erosion and Sedimentation. Grading and building construction could result in soil disturbance and increased erosion/sedimentation into the Oakland Inner Harbor, Oakland Middle Harbor, and San Francisco Bay. Construction equipment and operations may result in spills and other accidental emissions of pollutants that could enter and contaminate the surrounding water bodies. Temporary impacts of construction stormwater on water quality would not be significant upon implementation of National Pollutant Discharge Elimination System (NPDES) permit requirements for runoff. As part of these requirements, the Port will obtain a construction stormwater permit from the RWQCB or otherwise will comply with the statewide construction stormwater permit. The Port will implement BMPs for both construction and post-construction stormwater runoff consistent with the Port's stormwater management program and SWPPP. The stormwater management conditions of approval for all developments of over five acres would include requirements for a spill control and countermeasure plan to mitigate the potential impacts of spills on water quality.

Water Quality Degradation From Removal of Oakland Middle Harbor Piers. The removal of the wood piles supporting the Oakland Middle Harbor piers (i.e., Navy Pier No. 4, No. 5, and South Marginal Wharf) could release creosote, which could add to contamination of local waters by polynuclear aromatic hydrocarbons (PAHs). However, removing the wood piles would eliminate a continuing source of pollution from the exposed creosote surfaces of the piles and would result in a

net overall environmental benefit. The project pilings would be constructed of concrete or recycled plastic and would not contribute to contamination of surrounding waters. This not significant impact would be limited to reversionary Navy property and other non-Navy property. No mitigation is required.

Increased Sedimentation From Dredging and Filling. Dredging for new berths and filling areas of the Oakland Middle Harbor would increase short-term sedimentation, which in turn could increase the rate of sediment accumulation and therefore the need for additional dredging adjacent and nearby channel and berth areas during the initial dredging period. This is a temporary and not significant impact.

Water Quality Degradation from Dredging Clean Material. Dredging SUAD material also may cause temporary short-term elevated levels of suspended solids, dissolved sulfides, and decreases in dissolved oxygen levels. This could affect biotic resources. This impact is addressed in the Biological Resources section under Not Significant Impacts.

Saltwater Penetration of Aquifers From Dredging and Filling. Dredging for new berths may allow saltwater to penetrate into the Merritt Sand/Posey and Alameda aquifers. This issue was evaluated in the 42-foot deepening project environmental studies (US Army Corps of Engineers 1994). This potential impact was judged not to be significant because areas of the Merritt Sand/Posey aquifer have been exposed to saltwater intrusion for several thousand years; increasing bay water depth over aquifer exposures would not increase the saltwater hydraulic pressure on the freshwater aquifer and the freshwater hydraulic head is the primary barrier to saltwater intrusion into this aquifer. Therefore, limiting the use of the aquifer is the primary means of limiting saltwater intrusion into it. This alternative would not affect saltwater intrusion into the underlying Merritt Sand/Posey aquifer because it would not involve any pumping from the aquifer nor penetration of deeper aquifers.

Ground Water Quantity and Quality. Implementation of the Maximum Marine/Maximum Rail Alternative would not substantially alter ground water quantity underlying the site because no significant new impervious surfaces or ground water withdrawal would occur as part of the project. This alternative would not increase the use of local ground water on the site. Infiltration of precipitation falling on the site into the upper ground water aquifers would not be affected substantially by implementing this alternative. This is not a significant impact.

In addition, ground water quality would not be affected significantly by stormwater or industrial discharges under this alternative. Ongoing ground water cleanup operations would continue, and all industrial uses on the site would be subject to stormwater quality control plans. These plans, in conjunction with

prohibitions on industrial discharges to the ground water table, would assure that this impact will be not significant. This is not a significant impact.

5.1.8 Geology and Soils

The ROI for soils and geologic resources includes lands within the boundaries of the project site, adjacent contiguous land and waterways, the underlying geologic formations, and regional faults. Regional geologic features are discussed to provide a context for the discussion of geology at the project site because some geologic conditions and processes (such as movement along faults) may occur outside the FISCO/Vision 2000 project site boundaries but may impact the site.

5.1.8.1 Significance Criteria

A significant geologic impact may result if an action is likely to result in reduced access to or loss of geologic resources or if it is likely to expose people or property to severe damage or injuries from geologic hazards. Geologic resources may include mineral deposits, fertile soils, or landforms with unique aesthetic or scientific value. Geologic hazards may include earthquakes, slope failure, erosion or sedimentation, subsidence, settlement, or liquefaction.

For CEQA purposes only, an additional significance criterion is identified. Under the CEQA guidelines, a project that exposes people or structures to a major geologic hazard, such as an active earthquake fault, is considered a significant impact. No physical change to the environment is required for this environmental impact to be considered significant under CEQA.

5.1.8.2 Significant Impacts

Impact 1: Public Exposure to Earthquakes and Damage to Structures and Utilities from Ground Shaking. ABAG studies suggest that amplification of seismic waves in the materials underlying the project site during a magnitude 7.1 earthquake centered on the northern segment of the Hayward Fault would produce ground shaking in the range of VIII to X on the Mercali intensity scale (ABAG 1996). This would cause moderate to extreme levels of damage to structures and utilities.

Ground acceleration was predicted for similar materials at NAS Alameda for a magnitude 7.25 earthquake centered on the Hayward Fault (Carlisle and Rollins 1994). The predicted acceleration was approximately equal to the maximum ground acceleration that is used as the basis for static seismic design standards in the Uniform Building Code (International Conference of Building Officials 1994). An earthquake similar in magnitude to the 1906 San Francisco earthquake would produce ground acceleration more than one and a half times the Uniform Building Code design level. Since the project would be constructed according to current seismic safety standards, impacts may be reduced relative to the No Action Alternative in those areas where existing facilities are retained under the No Action Alternative. However, with the exception of wharf construction, which must be designed against site-specific seismic loading criteria according to the Port's Wharf Design Code, existing building standards (such as the UBC) do not

require determination of site-specific seismic design criteria for most of the proposed facilities.

In addition to severe damage to structures, violent earth movement could cause injuries or loss of life from falling objects, fires, or explosion from ruptured containers of flammable or explosive materials and environmental damage from hazardous materials released from tanks or storage containers. Depending on the location of the earthquake's epicenter and its size and duration, some damage may be unavoidable. This would be a significant and mitigable impact.

The following mitigation represents a range of options available to the Port that may be selected to reduce this impact to a level that is not significant. These measures may be revised or additional measures may be formulated during the next tier of environmental review.

Mitigation 1a. The final design of dikes and fills would be influenced by results of geotechnical studies currently underway. Design considerations should include reducing the potential for slope or ground failure, which should reduce potential damage to new structures, roads, and utilities.

Mitigation 1b. New structures and facilities should be designed to meet the following objectives, in order of priority: preventing injuries and loss of life, such as from the catastrophic failure of structures or from fires; preventing environmental damage, such as from the rupture of storage tanks, containers, or utility lines; maintaining emergency services, such as access to the site by land and water; and minimizing construction and replacement cost.

In order to meet the seismic design objectives stated above, some structures and facilities should be designed to meet the location-specific dynamic seismic design standards, which requires estimating ground accelerations likely to occur at the site for earthquakes of a specified probability.

Mitigation 1c. Facilities used for storing or handling hazardous materials should be designed and located so as to minimize the potential for releases in a large earthquake. A Spill Prevention, Control, and Countermeasures (SPCC) plan should be prepared for the facility or by individual tenant facilities and incorporated into the Port's hazard response plan.

In addition, as individual project components are designed, the projects would undergo additional public environmental review. Implementing Mitigations 1a, 1b, and 1c would reduce this impact to a level that is not significant.

Impact 2: Damage to Shoreline Slopes, Foundations, Structures, and Utilities from Liquefaction. Liquefaction is likely to occur locally throughout the project site in a major earthquake because the area is underlain by a shallow water table and loose sandy fill sediments. Liquefaction of placed materials could contribute to failure

of portions of both the existing and new perimeter dikes, foundations or structures, railroad track beds, and utilities. Liquefaction of materials underlying perimeter dikes could result in dike failure. Liquefaction of the soil underlying structures could result in damage to foundations supported by the soil. In some areas the project should result in reduced impacts relative to the No Action Alternative. In these areas existing fills, slopes, and retaining structures will be replaced, and the replacement components will be designed according to current best engineering practices, which are based on current knowledge of geologic hazards and modern design and construction methods. To the extent that normal best engineering practices do not require site-specific evaluation of seismic hazards or that existing slopes and foundation features are incorporated into the project, significant and mitigable impacts may still occur.

The following mitigation represents a range of options available to the Port that may be selected to reduce this impact to a level that is not significant. These measures may be revised or additional measures formulated during the next tier of environmental review.

Mitigation 2. The Port will perform geotechnical studies of the site, including an evaluation of the liquefaction potential of the existing fills and underlying Merritt Sand. Mitigation would be designed according to the recommendations of the geotechnical engineer. Among the mitigation options that may be considered to prevent damage to new structures are constructing structures on piles founded in the Merritt/Posey Sand and replacing existing fill or compacting new or existing fill materials for structures supported on a foundation at grade. Utilities could be fitted with flexible joints where appropriate to accommodate lateral stress. In addition, as individual project components are designed, the projects would undergo additional public environmental review. Implementing Mitigation 2 would reduce this impact to a level that is not significant.

Impact 3: Settlement. Impacts of settlement are primarily economic and do not affect life safety. However, settlement may have adverse environmental effects, such as reducing the effectiveness of drainage systems. Most of the potential settlement of the fill materials in the project site, under existing loading conditions, has already occurred. But proposed placement of additional fill and loading from new structures will begin a new cycle of settlement in those areas.

The amount of potential settlement is largely a function of the thickness of the Bay Mud. Since the Bay Mud is generally not very thick throughout the site and new loadings are not likely to differ much from existing loadings, the total potential settlement is likely to be small.

Filled habitat areas in the Middle Harbor may be sensitive to changes in surface elevation so that settlement of fills change the character of the habitat. For example, marshlands could become submerged and uplands could become marshlands.

Settlement impacts are considered potentially significant but mitigable. The following mitigation represents a range of options available to the Port that may be selected to reduce this impact to a level that is not significant. These measures may be revised or additional measures may be formulated during the next tier of environmental review.

Mitigation 3a. Potential for settlement of fills will be evaluated in geotechnical studies of the site. Impacts of settlement would be addressed by some of the same measures used to mitigate for liquefaction. These could include, but are not limited to, compaction of fills and construction on pile foundations (Mitigation 2). Potential mitigation measures also include placing excess new fill in anticipation of the potential settlement so that the final ground surface elevation is adequate after settlement. In certain locations where capillary rise in clayey soils overlying a shallow water table could cause near-surface soils to become waterlogged, capillary barriers should be constructed beneath the foundation. As with Mitigations 1 and 2, the Port will rely on licensed geotechnical engineers to provide the ultimate design solutions that will be adopted as part of project-level environmental documentation.

Mitigation 3b. Settlement and changes in surface elevation of the filled habitat area could be mitigated by replacing maintaining original elevations. However, placing new fill material might result in adverse consequences on established biota. The Port periodically will evaluate the habitat and will determine whether bathymetric changes are adverse, beneficial, or neutral with respect to the long-term objectives of the habitat and will take corrective action as needed.

Implementing Mitigations 3a and 3b would reduce these impacts to a level that is not significant.

Impact 4: Differential Settlement. Differential settlement can damage foundations, tilt or buckle structural supports, and misalign horizontal features, such as doorways, utility connections, or other rigid transitions. These are considered significant and mitigable impacts.

Differential settlement may occur throughout the project site but would probably be most severe in areas where differential settlement has been observed in the past; these areas are presumed to be underlain by an irregular thickness of Bay Mud that fills the erosional surface of the Merritt Sand. These impacts may be economically significant but are unlikely to affect life safety.

Soils with a high shrink-swell potential, which are subject to volume changes associated with wetting and drying, can cause damage to roads and foundations similar to those caused by differential settlement. Soil shrink-swell potential is not expected to be a widespread concern but could cause localized impacts where clayey fill materials are present. These are also significant and mitigable impacts.

The following mitigation represents a range of options available to the Port that may be selected to reduce this impact to a level that is not significant. These measures may be revised or additional measures formulated during the next tier of environmental review.

Mitigation 4. Building design plans and details and other improvement plans will be reviewed by a geotechnical engineer to determine whether they are compatible with the geotechnical conditions of the site. Mitigation measures for differential settlement are generally the same as for liquefaction (Mitigation 2). As with Mitigations 2 and 3, the Port will rely on licensed geotechnical engineers to provide the ultimate design solutions that will be adopted as part of project-level environmental documentation. Implementing Mitigation 4 would reduce these impacts to a level that is not significant.

5.1.8.3 Not Significant Impacts

Soil Erosion/Soil Loss. Construction and demolition activities would increase the potential for soil erosion. Soil erosion is not expected to be a significant geologic impact because it would be limited by the flat topography and required erosion control measures. A grading plan would be required in compliance with City of Oakland regulations.

Lateral Spreading. Lateral spreading could result from either the gradual or sudden failure of the perimeter dikes. Lateral spreading typically causes cracks and fissures to develop in the ground surface, gradually propagating inland as the underlying ground moves horizontally toward the site of the failure. Lateral spreading is not anticipated to be significant because it is a gradual process and because the perimeter dikes are expected to remain stable. Sudden catastrophic failure of a portion of the perimeter dikes caused by an earthquake or by undercutting by channel dredging, if it occurred, could be repaired quickly so that the region subject to impacts of lateral spreading would be confined to near the locus of the dike failure.

5.1.9 Traffic and Circulation

This section presents information on assumptions, methodology, and level of service results for the traffic impact analysis for all four Port reuse alternatives and identifies specific traffic impacts and mitigations. The description of impacts and mitigation for the various alternatives are presented in the follow sections:

- Section 5.1 - Maximum Marine/Maximum Rail Alternative;
- Section 5.2 - Minimum Marine/Minimum Rail Alternative;
- Section 5.3 - Maximum Marine/Minimum Rail Alternative;
- Section 5.4 - Reduced Harbor Fill Alternative.

The ROI for traffic analysis includes regional freeways in the East Bay from the Alameda/Contra Costa county line to the south Oakland city limits. This ROI for regional freeways was selected in consultation with the Alameda County

Congestion Management Agency (CMA) and the Metropolitan Transportation Commission and encompasses areas within the regional transportation network that could be affected by project-generated traffic. The ROI also includes local access routes within a two-mile radius of the project site and roadway/railroad at-grade crossings from Cutting Boulevard in Richmond to 37th Avenue, south of Fruitvale Avenue, in Oakland. The ROI for local access routes and roadway/railroad crossings was selected because it represents the limits of roads and rail crossings likely to be affected by the project.

5.1.9.1 Significance Criteria

Potential impacts for traffic and circulation were evaluated for intersections and freeways. The City of Oakland has developed standards for traffic operations at intersections, and the Alameda County Congestion Management Agency (CMA) has developed standards for roadway segments on its designated network including freeways for the ROI.

The City of Oakland has identified LOS D as the minimum acceptable operating condition for intersections. Therefore, a particular alternative would be considered to create a significant impact if the addition of its traffic resulted in a LOS E or F.

The Alameda County CMA has established LOS E as the standard for all roadways on the Congestion Management Plan designated network (which includes all area freeways). Therefore, a particular alternative would be considered to create a significant impact if the addition of its traffic resulted in LOS F. The Alameda County CMA (Alameda County CMA 1995) does not apply this criterion to freeway segments operating at LOS F in 1991. The following segments have been excluded from conformance with LOS standards:

- I-80 westbound from I-80/580 to the Bay Bridge toll plaza;
- I-80 eastbound and westbound east of the I-80/580 split;
- I-238 eastbound, from I-880 to I-580;
- I-580 eastbound from I-80/580 to I-980/State Highway 24;
- I-980 northbound, from I-880 to I-580; and
- State Highway 24 between I-580 and the Caldecott Tunnel.

For other freeway segments that would operate at LOS F without the project, an increase in the volume/capacity ratio of 0.03 would constitute significance. An increase of less than 0.03 would not be perceived by the public.

5.1.9.2 Assumptions and Methodology

Construction of Port Vision 2000 initial phase one improvements will be completed after 2002. To provide a context from which to evaluate future traffic impacts associated with the Port's four reuse alternatives, year 2010 traffic volumes on the regional and local access routes were projected assuming regional 2010 traffic conditions; this scenario is referred to throughout this chapter as conditions

in 2010 without the project (i.e., the No Action Alternative projected into the future).

Traffic conditions were evaluated for a typical day after the Port's Vision 2000 Program is completed. The worst-case traffic conditions were evaluated for a typical day for the periods when on-street traffic volumes are expected to be the highest. The periods evaluated for traffic impacts were selected based on two factors, commuter peak periods and truck activity peaks.

Traffic congestion is greatest on Bay Area roadways during the morning and evening commute periods—generally from 6:00 to 9:00 AM and from 3:00 to 6:00 PM. These are the periods when traffic impacts outside the immediate project area would be most noticeable to the traveling public. Most of the truck trips generated by the project alternatives would occur between 8:00 AM and 5:00 PM; the actual peak period for truck traffic would occur mid to late morning.

Analysis of total trip generation throughout the day showed the peak trip generation during commute peaks occurs from 8:00 to 9:00 AM and from 3:00 to 4:00 PM. Traffic conditions for these peak hours were evaluated to determine the extent of traffic impacts for the project alternatives. The peak traffic hours at the Port of Oakland differ from the traditional commuter peak hours, which occur from about 7:00 to 8:00 AM and 5:00 to 6:00 PM.

Traffic impacts were analyzed for 2010 conditions based on the transportation network that will be in place at that time. Trip generation rates were developed for employees and trucking activity at the marine and rail terminals and for other land uses within the project area. The traffic operating conditions at intersections and on freeways were compared to the established significance criteria to identify potentially significant impacts. The impacts of changes in train operations were also evaluated with regard to the effects on traffic operations at railroad/highway grade crossings. Parking requirements were computed based on national standards.

Other traffic and circulation elements were evaluated, including transit service, bicycles and pedestrians, impacts on adjacent neighborhoods, and consistency with transportation plans and regulations.

Transportation System Modeling

The analysis of traffic impacts was based on the 2010 Alameda County CMA transportation model. The model incorporates a representation of land use and demographic characteristics of the nine-county Bay Area, which allows it to produce travel demand forecasts that incorporate influences of regional travel demand on transportation facilities in Alameda County. The CMA model has been structured to provide forecasting detail that addresses the evaluation needs of both countywide and corridor-specific transportation strategies.

The CMA model was used as the basis for the study of traffic and circulation impacts because the assumptions in the model have been refined and agreed to on a regional basis. The land use assumptions contained in the 2010 CMA model were developed by the Association of Bay Area Governments (ABAG) with input from local member jurisdictions on planned development.

There were deficiencies in the model that were corrected in this study to more accurately represent the travel patterns at the Port of Oakland. The CMA model does not adequately address the special trip generation characteristics of the Port area. To remedy this deficiency, special trip generation data were developed for the Port facilities. In addition, the CMA model transportation network is not well defined in the Port area.

A focused area traffic impact model was developed for analysis of the FISCO/Vision 2000 project using the TRAFFIX™ impact analysis software package. This model was used to evaluate the project alternatives using the CMA model traffic volumes as controls for 2010 conditions without the project. The traffic generated for 2010 conditions without Port activity was removed from the model, then project traffic was added to the model for each proposed Vision 2000 reuse alternative. The TRAFFIX™ model worksheets are contained in Appendix J.7.

Future Transportation Network

Transportation conditions have been analyzed assuming completion of the I-880 Cypress Freeway project, currently under construction between I-980 and I-80. This freeway will replace the six-lane portion of I-880 that collapsed during the 1989 Loma Prieta earthquake.

Trip Generation

Trip generation for conditions in 2010 without the project and the four Port reuse alternatives was developed separately for automobiles and trucks. Trip generation rates for employees at the marine terminals were based on existing trip generation rates at the Port (Appendix J.4, Table J.4-6). Trips associated with employees who work at rail terminals was based on published trip generation rates for industrial parks (Institute of Transportation Engineers 1991) and are conservative in comparison to rates for other comparable land uses. Trip generation for the public waterfront access and marine habitat enhancement area was based on published trip generation rates for the types of land uses proposed (San Diego Association of Governments 1991 and Institute of Transportation Engineers 1991). The land use assumptions and trip generation for the public waterfront area are detailed in Appendix J.6, Tables J.6-7 through J.6-10.

The auto trip generation for both maritime and railyard land uses is related most closely to the number of employees at each site. The number of project employees for each traffic generator for 2010 conditions, without the project and the four Port reuse alternatives, is shown in Table 5-3.

Table 5-3
Project Employees

Traffic Generator	2010 without Project	Maximum Marine/ Maximum Rail Alternative	Minimum Marine/ Minimum Rail Alternative	Maximum Marine/ Minimum Rail Alternative	Reduced Harbor Fill Alternative
FISCO	700	na	400	na	na
Joint Intermodal Terminal	na	360	167	208	343
SP Rail Terminal	130	na	150	210	na
UP Rail Terminal	82	na	67	na	na
New Marine Terminal	na	1018	391	1135	1088
Middle Harbor Terminal	516	516	516	516	516
7th Street Marine Terminal	613	613	613	613	613
Outer Harbor Marine Terminal	706	706	792	706	706
Total	2,747	3,213	3,096	3,388	3,266

na = Not applicable: no traffic would be generated for this alternative.
Source: FISCO property (personal communication, Jim Putz 1996); Jordan Woodman Dobson, 1996; Nolte and Associates, Inc., 1996.

Truck trip generation was developed from data provided by the Port's maritime and railroad operations consultants. Daily truck traffic movements were developed for peak operating conditions from the number of containers that would be handled by the marine terminals and railyards. Daily truck traffic data and the assumptions used to develop the data are contained in Appendix J.4.

Peak hour truck traffic generation data for the marine terminals are shown in Appendix J.5 and J.6. Peak hour truck traffic for the rail terminals was developed from the number of internal truck trips and the daily proportions of internal and external truck traffic. All traffic volumes shown in this document are reported in terms of passenger car equivalents (PCEs). Each truck trip was considered to be equivalent to two auto trips (Institute of Transportation Engineers 1994).

Traffic generated by the existing project site was removed from the 2010 CMA model traffic volumes. The trip generation for each project alternative (shown in Table 5-4) was then added to the transportation network.

Conditions in 2010 without the project would result in the generation of 4,326 PCEs at the project site during the AM peak hour and 3,780 PCEs during the PM peak hour. The amount of truck traffic generated by the project site would be limited by the constrained capacity of the marine and rail terminals. The constrained conditions would result in a diversion of truck traffic from the Port of

Oakland to other ports. This diversion would amount to 339 PCEs during the AM peak hour and 296 PCEs during the PM peak hour (derived from data contained in Appendix J.4, Table J.4-5, and Appendix J.6, Tables J.6-1 and J.6-2). In addition, approximately 90 percent (540,000 containers per year) of the container traffic destined to the railroads would be diverted to other ports because of the limited Port of Oakland marine terminal and rail capacity (Appendix J.4, Table J.4-5).

Table 5-4
Total Trip Generation
(in passenger car equivalents)

Traffic Generator	2010 without Project	Maximum Marine/ Maximum Rail Alternative	Minimum Marine/ Minimum Rail Alternative	Maximum Marine/ Minimum Rail Alternative	Reduced Harbor Fill Alternative
AM Peak Hour					
In (to Site)	2,417	3,361	2,928	3,523	3,443
Out (from Site)	1,909	2,811	2,351	2,925	2,875
Total	4,326	6,172	5,279	6,448	6,318
PM Peak Hour					
In (to Site)	1,533	2,257	1,888	2,342	2,325
Out (from Site)	2,247	3,208	2,762	3,364	3,326
Total	3,780	5,465	4,650	5,706	5,651

Source: Standard rates from the Institute of Transportation Engineers (1991); the San Diego Association of Governments (1991); Jordan Woodman Dobson 1996; Nolte and Associates, Inc. 1996.

The Maximum Marine Alternatives (including the Reduced Harbor Fill Alternative) would generate 6,172 to 6,448 PCEs during the AM peak hour and 5,465 to 5,706 PCEs during the PM peak hour. The Maximum Marine/Minimum Rail Alternative would generate the most trips (6,448 PCEs in the AM peak, 5,706 in the PM peak), followed by the Reduced Harbor Fill Alternative (6,318 PCEs in the AM peak, 5,651 PCEs in the PM peak) and the Maximum Marine/Maximum Rail Alternative (6,172 PCEs in the AM peak, 5,465 in the PM peak). These three reuse alternatives would have the capacity to serve all the demand for goods transported through the Port, either by way of roads or the railway system.

The Minimum Marine/Minimum Rail Alternative would generate about 15 percent fewer trips than the Maximum Marine/Maximum Rail Alternative, primarily due to the smaller size of the new marine terminal area. The marine terminals proposed in the Minimum Marine/Minimum Rail Alternative would be able to serve the Bay Area demand for goods coming to the Port and distributed over Bay Area roadways. But these terminals would not be able to accommodate all the nationwide demand for goods arriving to the Port in containers and moving onto the railway for national distribution. As a result, approximately 61 percent

(270,000 containers per year) of the container traffic destined to the railroads would be diverted to other ports because of the limited Port of Oakland marine terminal capacity that would be used by containers carrying goods for Bay Area distribution (Appendix J.4, Table J.4-5).

Pass-by Trips

Conditions in 2010 without the project assume that the Port's Harbor Transportation Center would remain operating on FISCO. A portion of the current Harbor Transportation Center would be retained in the southeast corner of FISCO under the Minimum Marine/Minimum Rail Alternative. Currently, this facility serves as a transfer station for container cargo traveling to and from marine terminals. Containers traveling to or from the marine terminals are dropped off at the center and picked up later to complete their journey (Putz, J., August 1996, personal communication). The truck traffic in and out of this facility was considered to be pass-by trips. A survey of truck traffic in and out of the Harbor Transportation Center at Gate 2 showed 276 truck trips (552 PCEs) during the AM peak hour.

Pass-by truck trips were developed from existing conditions based on the growth in employment at the Harbor Transportation Center. The No Action Alternative would generate 366 AM (732 PCEs) and 366 PM (732 PCEs) peak hour pass-by truck trips and the Minimum Marine/Minimum Rail Alternative would generate 221 AM (442 PCEs) and 221 PM (442 PCEs) peak hour pass-by truck trips.

Under the Maximum Marine/Maximum Rail, Maximum Marine/Minimum Rail, and Reduced Harbor Fill Alternatives, the Harbor Transportation Center would need to be relocated to an off-site location. However, it is estimated that approximately 65 to 75 percent of the existing traffic associated with container storage and depot activities at this facility would be absorbed with completion of the proposed rail and marine terminals for each of these three alternatives (Beritzhoff, M., and J. Putz, September 27, 1996, personal communication). The traffic associated with other Harbor Transportation Center operations (such as redistributing goods from one container to another) may or may not be redistributed within the Port's industrial harbor area bordered by the new Cypress Freeway to the east and the Bay Bridge to the north. At present, the Port has not identified a specific site for relocation of this activity. If and when relocation of this facility is proposed, the effects of relocation on local and regional traffic will be addressed as part of subsequent project-level environmental documentation.

Trip Distribution

Traffic was distributed to area roadways for the various types of trips generated by the project alternatives. Employee trips and external truck trips were distributed to area roadways according to existing patterns described in Chapter 3. Internal truck trips were distributed between the marine terminals and the railyards proportional to the number of internal trips generated by each facility (Appendix J.6, Tables J.6-5 and J.6.6).

Level of Service Methodology

An analysis of intersection capacity was performed for intersections within the study area based on methods contained in the 1994 Highway Capacity Manual. Levels of service for freeways were calculated based on the methods contained in the 1985 Highway Capacity Manual, as required by the CMA (Alameda County CMA 1995). Levels of service are shown in the project impact sections for each alternative.

Delay at Railroad/Highway Grade Crossings

Crossing gate down time was evaluated at railroad/highway grade crossings using the number and speed of trains for each type of train. A summary of gate down time at grade crossings for each alternative is shown in Table 5-5, and detailed calculations are provided in Appendix J.9.

Table 5-5
Gate Down Time at Southern Pacific Railroad/Highway Grade Crossings - 2010
(in minutes per day)

Crossing Street	2010 without Project	Maximum Marine/ Maximum Rail Alternative	Minimum Marine/ Minimum Rail Alternative	Maximum Marine/ Minimum Rail Alternative	Reduced Harbor Fill Alternative
1. Cutting Boulevard	44	56	47	58	58
2. Gilman Street	46	59	49	61	61
3. Camelia Street	46	59	49	61	61
4. Cedar Street	46	59	49	61	61
5. Virginia Street	46	59	49	61	61
6. Hearst Avenue	46	59	49	61	61
7. Addison Street	46	59	49	61	61
8. Bancroft Way	46	59	49	61	61
9. 67th Street	56	72	60	74	74
10. 66th Street	56	72	60	74	74
11. 65th Street	56	72	60	74	74
12. Market Street	70	70	70	70	70
13. M. L. King Blvd.	70	70	70	70	70
14. Clay Street	70	70	70	70	70
15. Washington Street*	70	70	70	70	70
16. Broadway*	70	70	70	70	70
17. Franklin Street*	70	70	70	70	70
18. Webster Street	70	70	70	70	70
19. Oak Street	70	70	70	70	70
20. 5th Avenue	29	29	29	29	29
21. 29th Avenue	19	19	19	19	19
22. Fruitvale Avenue	19	19	19	19	19
23. 37th Avenue	19	19	19	19	19
TOTAL	1,180	1,331	1,216	1,353	1,353

*Gate down time is reported although there are no gates present at these crossings; the reported gate down time is used as a surrogate for delay to motorists at the crossing.

Source: Nolte and Associates 1996 and Dowling Associates 1996.

Parking Requirements

Parking requirements were determined from published parking rates for light industrial land uses (Institute of Transportation Engineers 1987). The parking rates for light industrial land use were the highest (and therefore most conservative) of all Institute of Transportation Engineers land use categories consistent with the project site. Parking requirements are shown in Table 5-6.

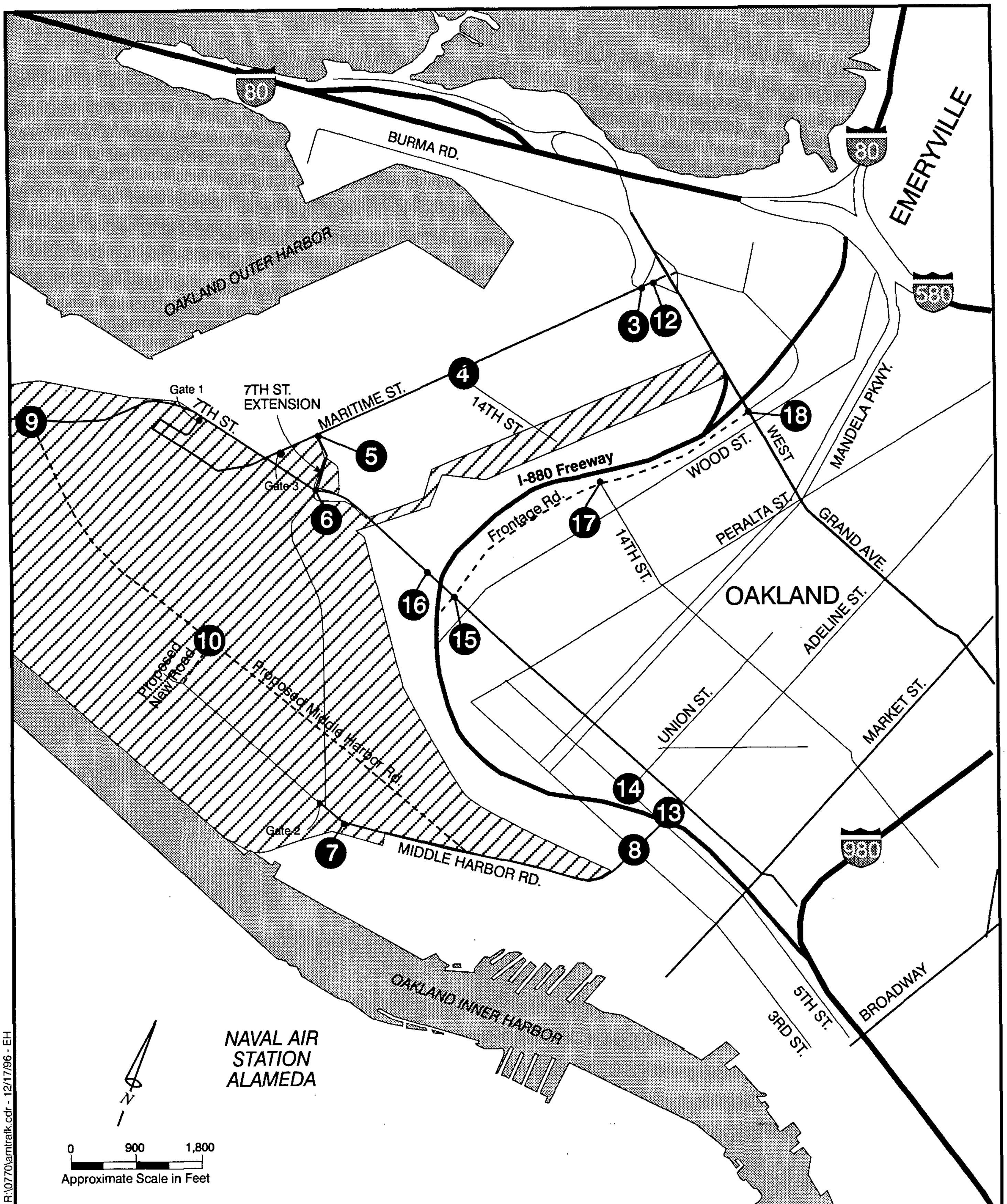
Table 5-6
Parking Spaces Required - 2010

Traffic Generator	2010 without Project	Maximum Marine/ Maximum Rail Alternative	Minimum Marine/ Minimum Rail Alternative	Maximum Marine/ Minimum Rail Alternative	Reduced Harbor Fill Alternative
FISCO	553	na	316	na	na
Joint Intermodal Terminal	na	284	132	164	271
SP Rail Terminal	103	na	119	166	na
UP Rail Terminal	65	na	53	na	na
New Marine Terminal	na	804	309	897	860
Middle Harbor Terminal	408	408	408	408	408
7th Street Marine Terminal	484	484	484	484	484
Outer Harbor Marine Terminal	558	558	626	558	558
Total	2,171	2,538	2,447	2,677	2,581

na - Not applicable.
Source: Standard rates from the Institute of Transportation Engineers (1987).

5.1.9.3 Significant Impacts

The Maximum Marine/Maximum Rail Alternative would generate 6,172 PCE trips during the AM peak hour and 5,465 PCE trips during the PM peak hour. The resulting impact of these additional trips to the transportation network has been determined through calculations of the resulting LOS at fifteen potentially affected intersections and eighteen potentially affected freeway segments serving the project area. Summaries of the LOS analysis and potentially significant impacts are shown in Figures 5-1 and 5-2 and Tables 5-7 and 5-8. Detailed calculations are shown in Appendix J.7.



The numbers above show the locations for analysis of traffic conditions on local streets.

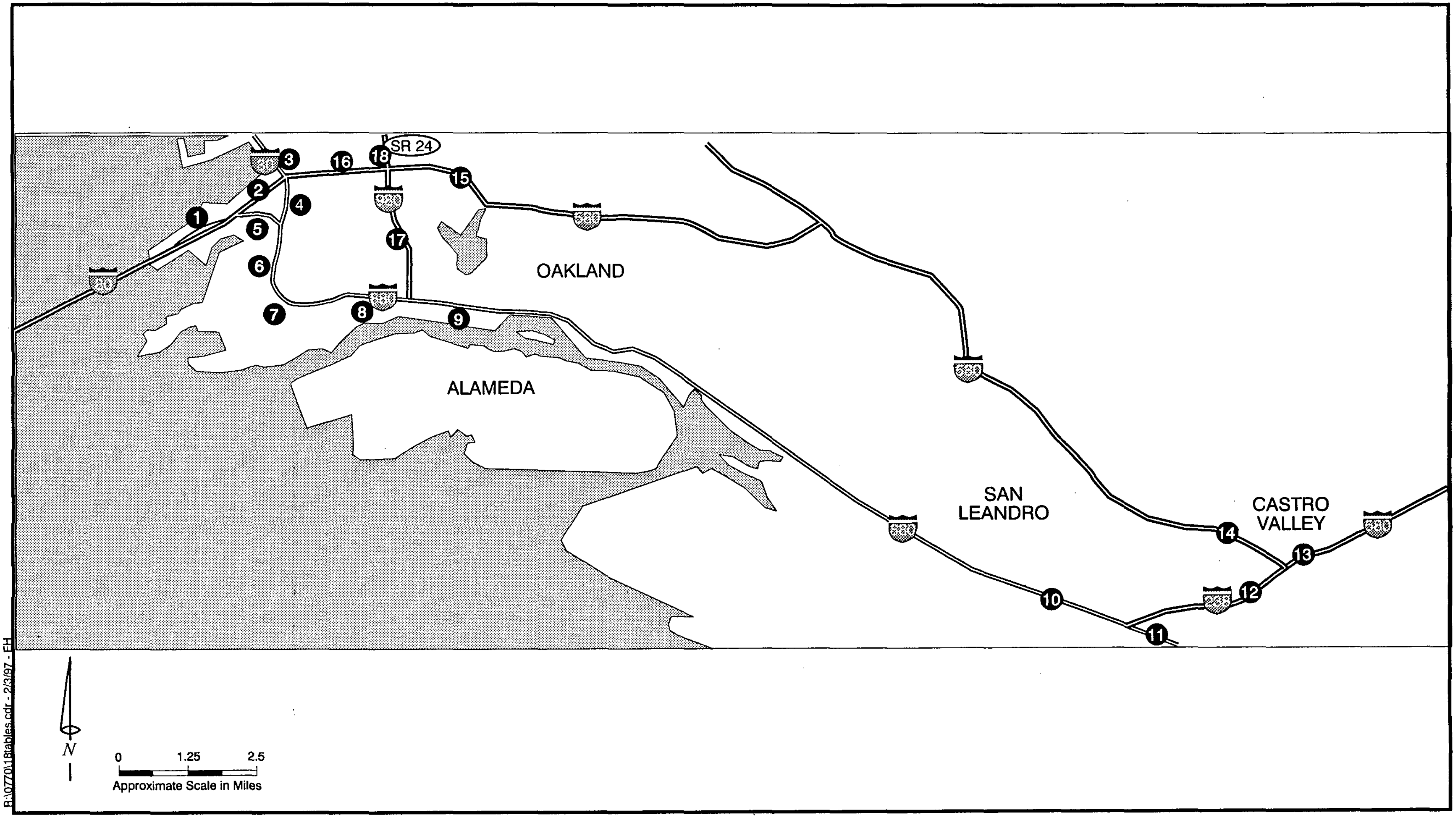
Level of Service Locations Year 2010

Source: CAA 1996; Dowling Associates 1996

Fleet & Industrial Supply Center Oakland and Port of Oakland

Figure 5-1

Port of Oakland



The numbers above show the locations for analysis of highway traffic conditions.

Source: Dowling Associates 1996

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Freeway Level of Service Locations
Year 2010

Fleet & Industrial Supply Center Oakland
and Port of Oakland

Figure 5-2

Port of Oakland

Table 5-7
Maximum Marine/Maximum Rail Alternative
Intersection Level of Service Summary - 2010

	2010 Without Project				Maximum Marine/Maximum Rail Alternative			
Intersection	AM Peak Hour LOS	AM Peak Hour Delay[1]	PM Peak Hour LOS	PM Peak Hour Delay[1]	AM Peak Hour LOS	AM Peak Hour Delay[1]	PM Peak Hour LOS	PM Peak Hour Delay[1]
3. Maritime/Burma	B	8	B	9	B	8	B	9
4. Maritime/14th Street	C	19	C	19	C	20	C	19
5. Maritime/7th Street Extension	B	7	B	10	C	17	B	13
6. 7th Street/7th Street Extension	C	17	C	18	B	14	B	14
7. Gate 2/Middle Harbor Road	B	14	C	19	na	na	na	na
8. 3rd Street/Adeline Street	**E**	**46**	**D**	**38**	**F[2]**	**75**	**F[2]**	**64**
9. 7th Street/Proposed Middle Harbor Road	na	na	na	na	C	16	C	16
10. New Road/Proposed Middle Harbor Road	na	na	na	na	C	20	C	15
12. Maritime/West Grand	C	17	C	18	C	16	C	18
13. Adeline/5th Street/1-880 Southbound Ramps	C	21	C	20	C	23	D	29
14. Union/5th Street/I-880 Northbound Ramps	C	17	C	16	C	17	C	16
15. 7th Street I-880 Northbound Ramp	C	23	C	19	C	21	C	18
16. 7th Street/I-880 Southbound Ramp	A	1	B	6	A	1	B	5
17. 14th Street/I-880 Frontage Road	C	2	C	1	C	3	C	2
18. West Grand/I-880 Frontage Road	C	20	C	21	C	21	C	22

[1] Delay in seconds.
[2] Indicates significant and mitigable impact.
na = Not applicable: intersection would not exist.
Shading indicates location that may experience significant LOS/delay impacts without mitigation.

Source: Dowling Associates 1996

Table 5-8
Maximum Marine/Maximum Rail Alternative
Freeway Level of Service Summary - 2010

	2010 Without Project				Maximum Marine/Maximum Rail Alternative			
Freeway Segment	AM Peak Hour LOS	AM Peak Hour V/C[1]	PM Peak Hour LOS	PM Peak Hour V/C[1]	AM Peak Hour LOS	AM Peak Hour V/C[1]	PM Peak Hour LOS	PM Peak Hour V/C[1]
1. I-80 at the Bay Bridge								
Eastbound	C	0.61	F	1.18	C	0.62	F	1.19
Westbound[2]	F	1.07	C	0.73	F	1.08	C	0.74
2. I-80 between I-880 and I-580								
Eastbound	B	0.44	C	0.70	B	0.44	C	0.70
Westbound[2]	F	1.08	B	0.41	F	1.08	B	0.40
3. I-80 East of I-80/I-580 Split								
Eastbound	D	0.86	F	1.20	D	0.86	F	1.21
Westbound[2]	F	1.09	F	1.02	F	1.09	F	1.02
4. I-880 Connector to I-80 East								
Northbound	B	0.40	B	0.53	B	0.42	C	0.55
Southbound	C	0.59	C	0.59	C	0.61	C	0.60
5. I-880 Connector to I-80 West								
Northbound	A	0.33	A	0.25	A	0.33	A	0.27
Southbound	A	0.20	A	0.31	A	0.22	A	0.32
6. I-880 North of 7th Street								
Northbound	B	0.40	B	0.40	B	0.41	B	0.41
Southbound	B	0.38	B	0.45	B	0.39	B	0.45
7. I-880 South of 7th Street								
Northbound	C	0.64	B	0.49	C	0.67	B	0.51
Southbound	B	0.42	C	0.68	B	0.44	C	0.71
8. I-880 North of I-980								
Northbound	C	0.63	B	0.48	C	0.65	B	0.49
Southbound	A	0.33	B	0.50	A	0.35	B	0.53
9. I-880 South of I-980								
Northbound	E	0.93	D	0.93	E	0.95	E	0.94
Southbound	C	0.66	C	0.76	C	0.67	D	0.78
10. I-880 North of I-238								
Northbound	F	1.14	F	1.06	F	1.15	F	1.07
Southbound	D	0.90	F	1.19	D	0.91	F	1.21
11. I-880 South of I-238								
Northbound	F	1.17	F	1.20	F	1.19	F	1.20
Southbound	F	1.27	F	1.21	F	1.28	F	1.22
12. I-238								
Eastbound[2]	B	0.53	E	0.95	B	0.53	E	0.96
Westbound	F	1.01	D	0.79	F	1.02	D	0.80
13. I-580 East of I-238								
Eastbound	C	0.65	D	0.89	C	0.66	D	0.89
Westbound	D	0.87	D	0.81	D	0.87	D	0.82
14. I-580 West of I-238								
Eastbound	D	0.93	F	1.01	D	0.93	F	1.01
Westbound	E	0.95	D	0.86	E	0.95	D	0.86
15. I-580 East of I-980/SH-24								
Eastbound	C	0.60	F	1.20	C	0.60	F	1.20
Westbound	F	1.09	C	0.73	F	1.09	C	0.73
16. I-580 West of I-980/SH-24								
Eastbound[2]	C	0.67	F	1.09	C	0.67	F	1.09
Westbound	E	0.98	C	0.73	E	0.99	C	0.73
17. I-980								
Northbound[2]	B	0.43	E	0.94	B	0.42	E	0.94
Southbound	D	0.83	B	0.48	D	0.82	B	0.48
18. SH-24 East of I-580								
Eastbound[2]	A	0.30	F	1.11	A	0.31	F	1.11
Westbound[2]	F	1.01	B	0.46	F	1.01	B	0.46

[1] Volume/Capacity

[2] Freeway segment is excluded from compliance with Alameda County CMA standards.

Note: No significant impacts would occur on any of the freeway segments.

Source: Dowling Associates 1996

Impact 1: Peak Hour Traffic at Local Intersections. AM and PM peak hour traffic for the Maximum Marine/Maximum Rail Alternative would result in traffic congestion at the intersection of 3rd Street and Adeline Street. The level of service at this intersection would drop to LOS F during both the AM and PM peak hours.

Mitigation 1: At the Middle Harbor Road/3rd Street Intersection, the required improvements would include restriping the east and westbound 3rd Street approaches. The restriping would convert the combination left/through lanes to left turn only. This modification would allow conversion of the existing split phasing to standard protected left turn phasing. These modifications would improve the level of service to LOS D during both the AM and PM peak hours, and would mitigate the traffic impact at this intersection to a not significant level.

5.1.9.4 Not Significant Impacts

Freeways. Traffic would be added to some Bay area freeway segments. The greatest increase in traffic would be on I-880 south of 7th Street, where traffic would increase by 186 PCEs during the AM peak hour and 135 PCEs during the PM peak hour. Project traffic would not result in significant impacts on any of the freeway segments. Detailed data on freeway levels of service are contained in Appendix J.8.

Railroad/Highway Crossings. Gate down time at railroad/highway grade crossings would increase by about 28 percent compared to conditions in 2010 without the project for eleven grade crossings north of the project site. The greatest increase in gate down time would be at 65th, 66th and 67th Streets, where gate down time would increase from 56 minutes per day to 72 minutes per day. The increase in gate down time represents a 1% increase in the likelihood of a motor vehicle being stopped at a grade crossing. This is considered a not significant impact. South of the project site the gate down time would not be affected. Detailed data on railroad/highway grade crossings are contained in Appendix J.9.

Parking. Future automobile parking demand generated by the Maximum Marine/Maximum Rail Alternative land uses would total approximately 2,538 spaces. Plans for developing this project alternative would include more than enough parking to satisfy the demand. This is considered a not significant impact.

Transit Service. Some increase in demand for transit services could result from this alternative. The project site is served by AC Transit Lines A, 13, 62, 82, and 82L, and the potential increase in demand should be met by these services. There would be a need to modify the bus routes associated with reconfiguration of the on-site roadway system. This would require coordination with AC Transit but is not expected to require major changes in service. Transit impacts are not expected to be significant.

Bicycle and Pedestrian System Impacts. Developing the Maximum Marine/Maximum Rail Alternative could increase the number of pedestrians and

bicyclists in the area. The Maximum Marine/Maximum Rail Alternative would provide separate pedestrian and bicycle facilities along the perimeter shoreline of the Middle Harbor as part of the Middle Harbor public access plan proposed for this alternative. These improved circulation systems would adequately accommodate the pedestrian and bicycle traffic generated by this alternative and could benefit the West Oakland community by providing additional opportunities for shoreline access separate from proposed marine and rail terminal activities. This is considered a not significant impact.

Consistency with Transportation Plans and Regulations. The Maximum Marine/Maximum Rail Alternative would be consistent with the city's transportation goals and objectives. Container routes would continue to use the roadways designated for such use, and design modifications would result in compliance with city level of service standards at all intersections. Traffic growth is expected to cause several freeway segments to fall below acceptable level of service standards established by the Metropolitan Transportation Commission. Plans under development to improve freeway operations include the I-880 Intermodal Study and implementing the Traffic Operations System by Caltrans. The initial stages of project implementation would occur beyond the seven-year horizon of the current Alameda County Congestion Management Plan. This is considered a not significant impact.

Neighborhood Impacts. Growth in Port maritime and rail activities would increase traffic in and around the project area. Presently, the West Oakland neighborhood experiences through traffic and on-street truck parking associated with maritime, rail, and general commerce activities. In addition, traffic is detoured due to lack of the former Cypress Freeway. The new I-880 Cypress Freeway, scheduled for completion in early 1997, will alleviate through traffic in this neighborhood by removing through truck traffic and other vehicular traffic and by buffering the neighborhood from the project site. Neighborhood streets may continue to be used by some West Oakland residents for truck parking, which is legal on public streets unless otherwise signed. Therefore, the impacts from project truck movements in the West Oakland neighborhood are not expected to be significant.

5.1.10 Air Quality

This section presents the results of traffic-related air pollutant emissions for the air quality impact analysis for conditions in 2010 without the project (i.e., the No Action Alternative) and the four Port reuse alternatives, and identifies specific air quality impact and mitigations for the Maximum Marine/Maximum Rail Alternative. The description of impacts and mitigation for the Minimum Marine/Minimum Rail, Maximum Marine/Minimum Rail, and Reduced Harbor Fill Alternatives are presented in Sections 5.2, 5.3, and 5.4, respectively,

The ROI for air quality issues varies according to the type of air pollutant. Pollutants that are directly emitted, such as carbon monoxide and particulate matter, have a ROI generally restricted to areas in the immediate vicinity of the

emission source. Pollutants produced by chemical reactions in the atmosphere, such as ozone and secondary particulate matter, have a ROI that includes the entire San Francisco Bay Area.

Air quality impacts have been evaluated through one of two approaches: net changes in regional air pollutant emission, or carbon monoxide dispersion modeling. Regional emissions analyses have been used to evaluate the significance of changes in auto, truck, rail, and cargo ship traffic under the various Port reuse alternatives. In addition, dispersion modeling analyses were performed to determine whether future auto and truck traffic conditions would produce any localized violations of federal or state ambient carbon monoxide standards. Appendix M presents a detailed discussion of the technical data and procedures, as well as detailed results of these impact assessment evaluations.

5.1.10.1 Significance Criteria

Air quality impact assessments address a mix of physical impacts, regulatory requirements, and policy or program consistency issues. This mix of impact analyses requires a fairly broad range of criteria for judging the significance of individual impact issues. Air quality impacts typically are judged to be significant if project implementation would directly or indirectly result in the following:

- Produce emissions that would cause or contribute to a violation of state or federal ambient air quality standards;

- Bring people into a situation where they would be exposed to air pollutants in concentrations that violate state or federal ambient air quality standards;

- Cause pollutant or pollutant precursor emissions in excess of air quality management agency impact significance thresholds (80 pounds per day or 15 tons per year for ozone precursor–i.e., reactive organic compounds [ROG] and nitrogen oxides [NOx], PM_{10} precursor–i.e., sulfur oxides [SOx], and direct PM_{10} emissions from operational activities);

- Conflict with specific air quality management plan policies or programs; or

- Foster or accommodate development in excess of the levels assumed by the applicable air quality management plan.

The choice of significance criteria for physical air quality impact issues is dictated largely by the technical procedures used for the impact assessment. Dispersion modeling analyses have been performed to evaluate the potential for causing or contributing to violations of federal or state carbon monoxide air quality standards. The significance of ozone precursor emissions (ROG and NOx), PM_{10}

precursor emissions (SOx), and direct PM_{10} emissions is evaluated in the context of emission significance thresholds established by Bay Area Air Quality Management District (BAAQMD 1996).

5.1.10.2 Significant Impacts

Impact 1: Transportation-Related Air Pollutant Emissions. The Maximum Marine/Maximum Rail Alternative would result in increased auto, truck, rail, and ship activity at the Port. Table 5-9 summarizes estimated emissions for five pollutants in 2010 for the four reuse alternatives in comparison to conditions in 2010 without the project. Table 5-10 summarizes the net change (in tons per year) of the reuse alternatives compared to both the No Action Alternative and the BAAQMD's 2010 emissions inventory for transportation sources (including automobiles, trucks, ships, and trains).

Compared to conditions in 2010 without the project, the Maximum Marine/Maximum Rail Alternative would result in a net increase of 52 tons per year of reactive organic compound emissions, 756 tons per year of nitrogen oxide emissions, 226 tons per year of carbon monoxide emissions, 181 tons per year of sulfur oxide emissions, and 114 tons per year of PM_{10} emissions. The Maximum Marine/Maximum Rail Alternative would increase regionwide emissions from transportation sources by about 1 percent for nitrogen oxides and sulfur oxides, and by about 0.1 percent for other pollutants. These net emission increases exceed the BAAQMD impact significance criteria of 15 tons per year for ozone and PM_{10} precursors, and thus represent a significant unmitigable air quality impact.

Mitigation 1. No feasible mitigation measures have been identified that could reduce the net emissions increases to less than 15 tons per year. Net emissions increases are dominated by emissions from trucks and cargo ships. The Port has no feasible way to control expected emissions from trucks, trains, or cargo ships. Emission calculations already assume that trip reduction programs will produce a 15 percent reduction in employee home-work trips and a ten percent in work-other trips.

Impact 2: Construction and Demolition. The Maximum Marine/Maximum Rail Alternative would require significant amounts of construction activity and demolition of existing structures. Construction and demolition activities would be temporary sources of fugitive dust and vehicle emissions. If not property controlled, dust from construction and demolition activities could be a source of localized nuisance problems and could cause temporary violations of state and federal PM_{10} standards. Building demolition, site preparation for new building construction, and roadway reconstruction would be the most significant emission-generating activities. Construction of new berths, rail line modifications, removal of existing fill, and placement of new fill generally would result in lesser amounts of dust generation. This impact is considered significant and mitigable.

Table 5-9
Summary of Mobile Source Air Pollutant Emissions

Parameter	2010 Without Project	Maximum Marine/ Maximum Rail Alternative	Minimum Marine/ Minimum Rail Alternative	Maximum Marine/ Minimum Rail Alternative	Reduced Harbor Fill Alternative
Number of Employees	2,747	3,213	3,096	3,388	3,266
Average Daily Vehicle Trips:					
Autos	8,571	9,945	9,590	10,482	10,115
Trucks	1,448	21,163	17,562	21,946	21,636
Total	10,019	31,108	27,152	32,428	31,751
Average Daily VMT:					
Autos	131,544	153,155	147,647	161,467	155,739
Trucks	354,221	399,854	393,217	401,446	400,630
Total	485,765	553,009	540,864	562,913	556,369
Daily Rail Traffic Ton-Miles:					
Amtrak	1,030,000	1,030,000	1,030,000	1,030,000	1,030,000
Freights	809,000	1,086,000	898,500	1,115,500	1,115,500
Total	1,839,000	2,116,000	1,928,500	2,145,500	2,145,500
Annual Cargo Vessel Ship Calls:					
Container Vessels	762	1,185	960	1,233	1,215
Bulk Carriers	178	277	223	288	284
Other Cargo Vessels	114	177	143	184	180
Total	1,054	1,639	1,326	1,705	1,679
Annual ROG Emissions (Tons/Yr):					
Autos	9.8	11.4	11.0	12.0	11.6
Trucks	171.9	197.3	191.8	198.6	198.0
Amtrak	2.7	2.7	2.7	2.7	2.7
Freight Trains	5.0	6.7	5.6	6.8	6.8
Cargo Ships	42.0	65.7	52.9	68.1	67.1
Total	231.4	283.8	264.0	288.3	286.3
Annual NOx Emissions (Tons/Yr):					
Autos	19.1	22.2	21.4	23.5	22.6
Trucks	1,041.3	1,176.8	1,156.4	1,181.6	1,179.2
Amtrak	137.6	137.6	137.6	137.6	137.6
Freight Trains	111.8	149.9	124.3	153.9	153.9
Cargo Ships	1,027.8	1,607.1	1,293.6	1,666.2	1,640.5
Total	2,337.6	3,093.6	2,733.3	3,162.8	3,133.8
Annual CO Emissions (Tons/Yr):					
Autos	137.5	160.0	154.3	168.7	162.7
Trucks	769.2	885.7	859.4	891.8	889.0
Amtrak	14.7	14.7	14.7	14.7	14.7
Freight Trains	16.2	21.6	18.0	22.2	22.2
Cargo Ships	142.3	223.8	180.3	232.2	228.5
Total	1,079.9	1,305.8	1,226.8	1,329.6	1,317.1

Table 5-9 *(continued)*
Summary of Mobile Source Air Pollutant Emissions

Parameter	2010 Without Project	Maximum Marine/ Maximum Rail Alternative	Minimum Marine/ Minimum Rail Alternative	Maximum Marine/ Minimum Rail Alternative	Reduced Harbor Fill Alternative
Annual SOx Emissions (Tons/Yr):					
Autos	1.1	1.3	1.2	1.3	1.3
Trucks	62.5	70.5	69.4	70.8	70.7
Amtrak	2.2	2.2	2.2	2.2	2.2
Freight Trains	9.5	12.9	10.4	13.3	13.3
Cargo Ships	303.4	472.4	380.8	491.2	484.5
Total	378.6	559.3	464.0	578.8	572.0
Annual PM10 Emissions (Tons/Yr):					
Autos	112.7	131.2	126.5	138.3	133.4
Trucks	441.8	498.7	490.4	500.7	499.7
Amtrak	3.3	3.3	3.3	3.3	3.3
Freight Trains	2.7	3.6	3.0	3.7	3.7
Cargo Ships	66.5	103.8	83.6	107.8	106.2
Total	626.9	740.6	706.7	753.8	746.3

Table 5-10
Net Emissions Change (Tons per Year) Compared to 2010 Without Project and BAAQMD 2010 Emissions Inventory for Transportation Sources

Pollutant	Maximum Marine/ Maximum Rail Alternative	Minimum Marine/ Minimum Rail Alternative	Maximum Marine/ Minimum Rail Alternative	Reduced Harbor Fill Alternative	BAAQMD 2010 Emissions Inventory for Transportation Sources
ROG Emissions	52.4	32.6	56.8	54.8	46,720
NOx Emissions	756.0	395.7	825.2	796.2	77,380
CO Emissions	225.9	146.9	249.7	237.2	342,370
SOx Emissions	180.7	85.4	200.2	193.4	13,505
PM10 Emissions	113.6	79.8	126.8	119.3	154,395

Notes: VMT = vehicle miles traveled
ROG = reactive organic compounds (threshold = 15 tons/year)
NOx = nitrogen oxides (threshold = 15 tons/year)
CO = carbon monoxide (threshold = potential violation of state or federal ambient air quality standards)
SOx = sulfur oxides (threshold = 15 tons/year)
PM10 = inhalable particulate matter (threshold = 15 tons/year)
BAAQMD = Bay Area Air Quality Management District
Annual emission estimates assume 250 working days per year for auto and truck traffic, 365 working days per year for cargo vessels and rail traffic.
Emission rate calculations are documented in Appendix M.
Auto and truck traffic emission calculations use 2010 emission rates from the California Air Resources Board's EMFAC7F vehicle emission rate model plus supplemental SOx emission factors.
Rail traffic emission estimates use emission rate data from EPA mobile source emission inventory guidance documents (US Environmental Protection Agency., 1992). Cargo vessel emission estimates use emission rate data from California Air Resources Board marine vessel emission inventory (California Air Resources Board 1991), the port vessel emissions model (Port of Long Beach 1986), and AP-42, Supplement F (US Environmental Protection Agency 1993). BAAQMD emission inventory data are from Bay Area Air Quality Management District (1996), and include motor vehicle traffic, rail traffic, aircraft operations, marine vessels, and small craft.

The specific extent and exact timing of construction and demolition activities have not yet been identified, but would occur over several years. Consequently, it is not possible to provide reliable estimate of construction-related emissions for any particular year.

The BAAQMD guidelines for air quality impact assessments focus on identifying appropriate dust mitigation measures rather than quantifying emissions from construction activities (BAAQMD 1996). The BAAQMD considers construction dust to be a less than significant impact if appropriate dust control measures are implemented.

Mitigation 2. The mitigation presented below represents a range of options available to the Port that may be selected to reduce this impact to a level that is not significant. These measures may be revised or additional measures may be formulated as mitigation during the next tier of environmental review.

The Port's implementation of the following dust control measures would mitigate the impact of dust and PM_{10} emissions to a not significant level.

- The area disturbed by clearing, earthmoving, or excavation activities should be minimized at all times;

- All areas to be excavated or graded should be sufficiently watered to prevent excessive dust generation during excavation or grading operations;

- All clearing, grading, earthmoving, and excavation activities should be halted during periods of sustained strong winds (hourly average wind speeds of 20 mph or greater);

- Unpaved inactive portions of the construction site, such as portions of the parking lots or public access area, should be seeded and watered to maintain a grass cover;

- All exposed soil and sand stockpiles should be enclosed, covered, are stabilized with soil binders or should be watered twice daily to control wind erosion;

- All unpaved active portions of the construction site should be watered twice daily or treated with dust control solutions as necessary to minimize windblown dust and dust generation by vehicle traffic;

- Any petroleum-based dust control products used on the site should meet BAAQMD regulations for cutback asphalt paving materials;

- Paved portions of the construction site should be swept as necessary to control wind-blown dust and dust generation by vehicle traffic;

- On-site vehicle speeds should be limited to 15 mph or less; and
- Streets adjacent to construction sites and staging areas should be swept daily to remove accumulated dust and soil.

5.1.10.3 Not Significant Impacts

Carbon Monoxide Concentrations from Area Traffic. Potential carbon monoxide concentrations generated by afternoon peak hour traffic conditions have been modeled using the CALINE4 dispersion model (Benson 1989). Modeling results for all reuse alternatives and conditions in 2010 without the project are summarized in Table 5-11. Maximum predicted carbon monoxide concentrations for the Maximum Marine/Maximum Rail Alternative are 6.7 parts per million (ppm) as a 1-hour average and 5.3 ppm as an 8-hour average. California ambient air quality standards for carbon monoxide of these materials. Consequently, this impact is considered to be not significant are 20 ppm for a 1-hour average and 9 ppm for an 8-hour average. The Maximum Marine/Maximum Rail Alternative would not cause or contribute to ambient carbon monoxide problems in the West Oakland area. Therefore, the Maximum Marine/Maximum Rail Alternative would not cause or contribute to ambient carbon monoxide impacts in the West Oakland area.

Asbestos and Lead Particles from Demolition Activities. Older buildings located on the project site may have lead-based paints and materials containing friable asbestos. Building demolition activities have the potential to release lead- or asbestos-contaminated materials into the air. Compliance with existing federal, state, and BAAQMD regulations during building demolition or remodeling would prevent significant airborne releases.

Land Use Compatibility Conflicts. The industrial land uses associated with Port operations do not include the types of manufacturing and processing industries that are typically sources of odor problems. The limited amount of equipment maintenance facilities associated with proposed marine and rail terminal facilities would not be major sources of hazardous air pollutant emissions. BAAQMD air quality permit procedures would establish required emission controls for these facilities. Consequently, no significant air quality-related land use conflicts with adjacent residential and commercial neighborhoods are anticipated.

5.1.10.4 No Impacts

Federal Clean Air Act Conformity. Section 176(c) of the Clean Air Act requires federal agencies to ensure that actions undertaken in nonattainment or maintenance areas are consistent with the Clean Air Act and with federally enforceable air quality management plans. EPA has promulgated separate rules that establish conformity analysis procedures for transportation-related actions and for other (general) federal agency actions. Transportation conformity requirements apply to actions funded or approved by the Federal Highway Administration (FHWA) or the Federal Transit Administration (FTA).

Table 5-11
Summary of Carbon Monoxide Dispersion Modeling Results

Modeled Receptor Location	Peak 1-Hour Carbon Monoxide Concentration (ppm)					Peak 8-Hour Average Carbon Monoxide Concentration (ppm)				
	No Action Alternative	Maximum Marine/ Maximum Rail Alternative	Minimum Marine/ Minimum Rail Alternative	Maximum Marine/ Minimum Rail Alternative	Reduced Harbor Fill Alternative	No Action Alternative	Maximum Marine/ Maximum Rail Alternative	Minimum Marine/ Minimum Rail Alternative	Maximum Marine/ Minimum Rail Alternative	Reduced Harbor Fill Alternative
75 ft NW of Maritime & Burma Road	5.9	5.9	6.0	6.0	5.9	4.7	4.7	4.7	4.7	4.7
75 ft SW of Maritime & Burma Road	6.0	6.0	6.0	6.0	6.0	4.7	4.7	4.7	4.7	4.7
75 ft NE of Maritime & Burma Road	5.7	5.7	5.7	5.7	5.7	4.5	4.5	4.5	4.5	4.5
75 ft SE of Maritime & Burma Road	5.4	5.3	5.4	5.4	5.3	4.3	4.2	4.3	4.3	4.2
65 ft NW of Maritime & 7th St. Ext.	5.3	5.5	5.4	5.4	5.5	4.2	4.3	4.3	4.3	4.3
65 ft SW of Maritime & 7th St. Ext.	5.3	6.1	5.7	6.0	6.2	4.2	4.8	4.5	4.7	4.9
65 ft NE of Maritime & 7th St. Ext.	5.1	5.6	5.2	5.5	5.6	4.0	4.4	4.1	4.3	4.4
65 ft SE of Maritime & 7th St. Ext.	5.3	6.0	5.6	5.9	6.1	4.2	4.7	4.4	4.7	4.8
65 ft NW of 7th Street & I-880	5.9	6.0	5.9	5.9	6.0	4.7	4.7	4.7	4.7	4.7
65 ft SW of 7th Street & I-880	6.3	6.5	6.4	6.5	6.5	5.0	5.1	5.1	5.1	5.1
65 ft NE of 7th Street & I-880	5.3	5.3	5.3	5.3	5.4	4.2	4.2	4.2	4.2	4.3
65 ft SE of 7th Street & I-880	5.6	5.7	5.7	5.7	5.7	4.4	4.5	4.5	4.5	4.5
65 ft NW of Adeline & 3rd St.	5.1	5.7	5.6	6.3	5.9	4.0	4.5	4.4	5.0	4.7
65 ft SW of Adeline & 3rd St.	5.7	6.2	6.1	6.9	6.4	4.5	4.9	4.8	5.5	5.1
65 ft NE of Adeline & 3rd St.	5.8	6.7	6.5	7.7	6.9	4.6	5.3	5.1	6.1	5.5
65 ft SE of Adeline & 3rd St.	5.7	6.3	6.2	7.2	6.5	4.5	5.0	4.9	5.7	5.1
65 ft NW of Adeline & I-800	5.7	6.0	5.9	6.0	6.1	4.5	4.7	4.7	4.7	4.8
65 ft SW of Adeline & I-800	5.4	5.6	5.4	5.5	5.6	4.3	4.4	4.3	4.3	4.4
65 ft NE of Adeline & I-800	5.6	5.8	5.6	5.7	5.9	4.4	4.6	4.4	4.5	4.7
65 ft SE of Adeline & I-800	5.6	5.8	5.6	5.7	5.8	4.4	4.6	4.4	4.5	4.6

Notes: ppm = parts per million by volume.
Modeling analyses were performed using the CALINE4 dispersion model and year 2010 vehicle emission rates from the EMFAC7F model.
Modeling analyses assumed poor dispersion conditions: 1 meter/second (2.2 mph) wind speeds. Class E stability conditions, 10 degree horizontal wind direction fluctuation, and a mixing height limit of 50 meters (164 feet).
Wind directions were modeled in 10 degree increments, and the results for the worst case wind direction are presented in this table.
Peak 1-hour carbon monoxide concentrations include a background increment of 4 ppm; peak 8-hour average concentrations are estimated as 79% of the peak 1-hour value.
Modeled traffic volumes represent afternoon peak hour conditions for the year 2010.
The modeled roadway network included I-80, I-880, I-580, I-980, Maritime Street, 7th Street, 7th Street Extension, Middle Harbor Road, the frontage road along I-880, and short segments of Adeline Street, Union Street, and West Grand Avenue.
EMFAC7F emission rates for freeway traffic reflect 2.6% gasoline-fueled heavy trucks and 9.8% diesel-fueled heavy trucks.
EMFAC7F emission rates for surface streets reflect truck routes with 2.6% gasoline-fueled heavy trucks and 25.6% diesel-fueled heavy trucks.
Vehicle emission rates are based on congested traffic conditions, with excess idling emissions added as necessary to the basic EMFAC7F emission rate.
Federal ambient air quality standards for carbon monoxide are 35 ppm for a 1-hour average and 9 ppm for an 8-hour average.
California ambient air quality standards for carbon monoxide are 20 ppm for a 1-hour average and 9 ppm for an 8-hour average.

The first phase of the Vision 2000 joint intermodal terminal will receive federal moneys issued through the Intermodal Surface Transportation Efficiency Act. However, the transportation conformity rule applies primarily to highway construction projects and mass transit system projects. Harbor and railroad development projects generally are not subject to transportation conformity requirements (Tannehill, September 25, 1996, personal communication). Therefore, the Vision 2000 Program would not likely be subject to Clean Air Act conformity determination requirements, and no impacts are expected.

5.1.11 Noise

For this EIS/EIR, the overall ROI is the northwestern portion of Oakland (south of I-580 and west of Market Street),), extending south, north, and east from the project site along the Southern Pacific mainline railroad tracks and into the Central Valley. A more localized ROI of about one-half mile of the noise source is appropriate for some discrete noise sources.

5.1.11.1 Significance Criteria

Annoyance effects are the primary consideration for most noise impact assessments. Land use compatibility guidelines from local general plans are the most common source of criteria used to assess significance for noise issues. Regulatory thresholds established by state and local codes also can provide some of the criteria used to judge the significance of noise impacts.

A proposed action can have significant noise impacts through two different mechanisms—creating new sources of noise in an area or establishing noise-sensitive land uses in locations that will be exposed to high noise levels. Both situations must be considered when establishing significance criteria for noise impacts.

Project-related noise changes are identified by comparing future conditions with the project to future conditions without the project. The Port of Oakland has determined that project-generated noise levels would be considered a significant noise impact under the following conditions:

- If there is a project-related increase in CNEL levels of three dB or more that affects noise-sensitive land uses (residential, medical, or educational land uses) and that results in an overall noise level that would exceed 65 dB.

- In noise environments below 65 dB, if there is a project-related increase in CNEL levels of five dB or more that affects noise-sensitive land uses.

Temporary noise sources that are restricted to daytime hours, such as most construction and demolition activities, will be considered a significant impact only

if they affect noise-sensitive land uses and result in noise levels that would exceed the limits in the Oakland noise ordinance.

5.1.11.2 Not Significant Impacts

Rail Traffic Noise North and East of West Oakland. The rail facility proposed under the Maximum Marine/Maximum Rail Alternative is expected to increase the level of long distance rail traffic associated with Port operations. An average of 28 freight trains per day would enter or leave the northern portion of the rail facility (between West Oakland and Richmond). An average of eight freight trains per day would enter or leave the southern end of the proposed rail facility (between West Oakland and Elmhurst). There would be a net increase in operations north of the rail facility, and no change in rail operations south of the facility. Amtrak train movements through the railyard will contribute additional rail operations.

Table 5-12 summarizes CNEL increment attributable to combined freight train and Amtrak movements on high speed track segments north of Oakland. Communities along the rail line between Oakland and the Central Valley would experience an increase in rail noise under the Maximum Marine/Maximum Rail Alternative. Many of the rail segments north of Berkeley allow train speeds of 60 mph. Rail noise contributions to overall noise levels would increase by about 2 dBA for areas within 750 feet of the tracks, with smaller noise level increases at greater distances. Depending on the extent of shielding by intervening topography and buildings, locations within 750 feet of the tracks may experience CNEL (community noise equivalent level) exposures above 65 dBA wherever train speeds exceed 60 mph.

Table 5-12
Rail Traffic CNEL Increments (dB) Along 60 MPH Main Line Rail Traffic North of Oakland

	2010 without Project		Maximum Marine/ Maximum Rail Alternative		Minimum Marine/ Minimum Rail Alternative		Maximum Marine/ Minimum Rail Alternative		Reduced Harbor Fill Alternative	
Distance (ft)	**W/O Horn**	**W/Horn**	**W/O Horn**	**W/Horn**	**W/O Horn**	**W/Horn**	**W/O Horn**	**W/Horn**	**W/O Horn**	**W/Horn**
50	78.8	81.4	81.0	83.3	79.4	81.8	81.1	83.3	81.1	83.3
75	77.0	78.9	79.2	80.9	77.6	79.4	79.3	80.9	79.3	80.9
100	75.7	77.2	77.9	79.2	76.3	77.7	78.0	79.2	78.0	79.2
150	73.8	74.9	76.1	77.0	74.4	75.4	76.1	77.0	76.1	77.0
200	72.5	73.3	74.7	75.4	73.1	73.9	74.8	75.5	74.8	75.5
300	70.5	71.1	72.8	73.3	71.1	71.7	72.8	73.3	72.8	73.3
400	69.1	69.6	71.3	71.7	69.7	70.1	71.4	71.8	71.4	71.8
500	67.9	68.3	70.2	70.5	68.5	68.9	70.2	70.5	70.2	70.5
750	65.7	66.0	67.9	68.2	66.3	66.5	68.0	68.2	68.0	68.2
1,000	63.9	64.1	66.1	66.3	64.5	64.7	66.1	66.3	66.1	66.3
1,500	61.1	61.3	63.2	63.3	61.6	61.8	63.2	63.3	63.2	63.3
2,000	59.0	59.2	60.9	61.0	59.5	59.6	61.0	61.1	61.0	61.1
2,500	57.4	57.6	59.1	59.2	57.9	58.0	59.2	59.3	59.2	59.3
3,000	56.2	56.3	57.7	57.8	56.6	56.7	57.7	57.8	57.7	57.8
4,000	54.7	54.7	55.7	55.7	54.9	55.0	55.7	55.8	55.7	55.8
5,000	53.8	53.8	54.4	54.4	53.9	53.9	54.4	54.5	54.4	54.5

Figure 5-3 illustrates average CNEL levels along track sections that allow train speeds of 60 mph. CNEL levels would be lower along track sections that require lower train speeds. This is considered a not significant impact because the difference between noise levels in 2010 with and without the project (both with and without a horn) would not exceed the 3 dB significance criteria.

Construction and Demolition. This alternative would require significant amounts of construction activity and demolition of existing structures. Construction and demolition activities would be temporary sources of noise affecting different portions of the project site at different times. Removing existing fill, placing new fill, preparing the site for new building construction, roadway reconstruction, and paving operations would be the most significant noise-generating activities. Demolishing buildings, constructing new berths, and modifying rail lines generally would result in lesser amounts of noise.

Noise from construction activities would not be a significant disruption to on-site industrial activities. Construction of ship berths would be more than 3,000 feet from the nearest West Oakland residential neighborhood. Even pile driver noise would be reduced to background noise levels at such distances.

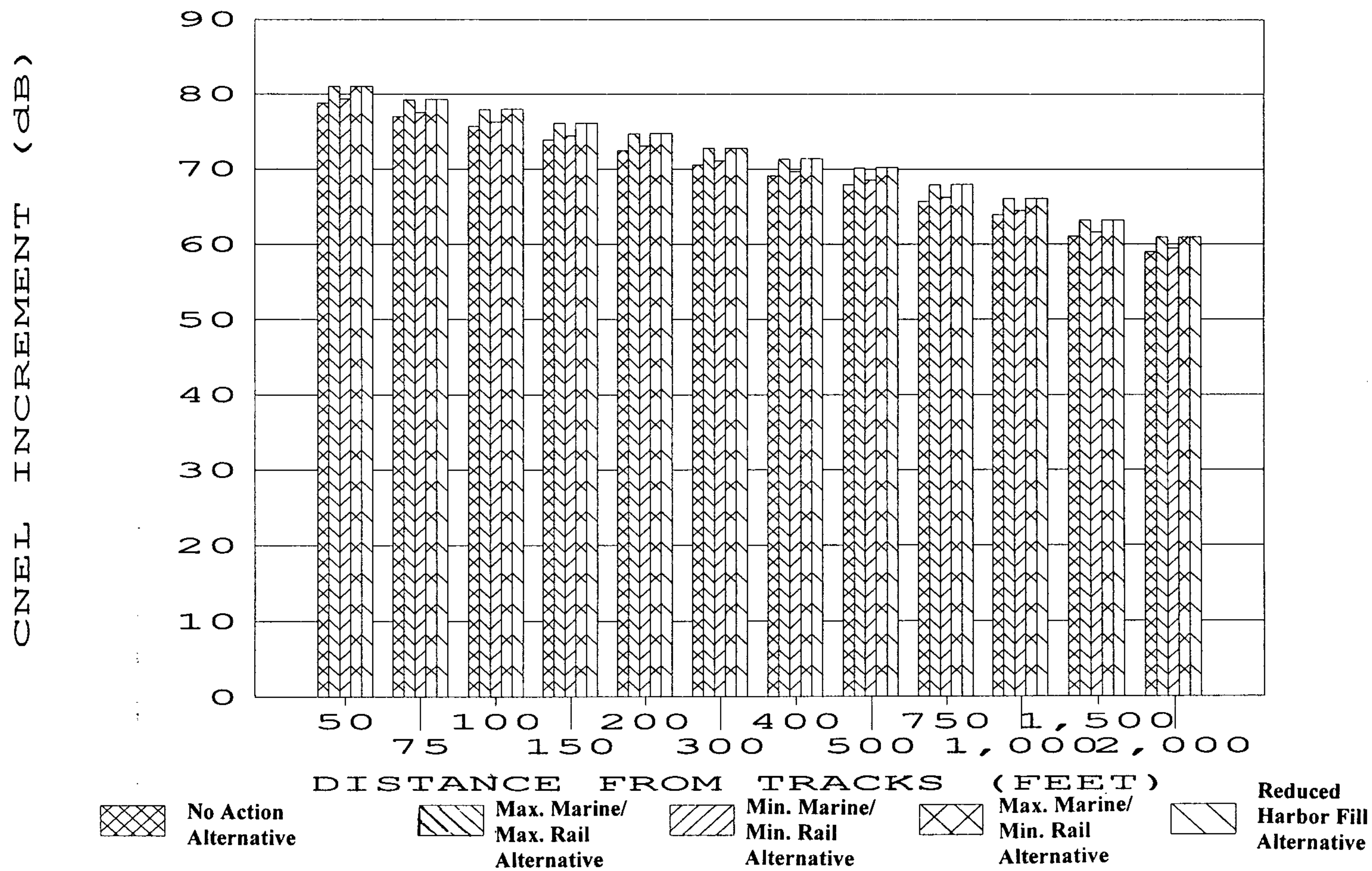
Construction activity associated with container storage and rail facilities would be at least 1,200 feet from the closest residential receptor (i.e., 3rd and Peralta Streets), with much of the construction activity more than 1,500 feet from residential neighborhoods; these distances are sufficient to avoid any significant noise impacts from construction activity. Therefore, noise generated by construction activity is considered a not significant impact.

Noise Generated by Vehicle Traffic. As noted in Section 3.11, existing noise levels in neighborhoods near the Port of Oakland are relatively high. Port expansion associated with the Maximum Marine/Maximum Rail Alternative would generate an increased volume of auto and truck traffic headed to or from the Port. The added truck traffic, in particular, has the potential for increasing traffic noise levels in neighborhoods adjacent to area freeways and along major freeway access routes.

Completion of the Cypress Freeway replacement project would reduce existing traffic volumes along many surface streets and would add the new freeway segment as a major traffic noise source. Sound walls along several sections of the new freeway would help reduce noise levels in adjacent neighborhoods. Completion of the new freeway segment also would significantly improve freeway access for truck traffic to and from the Port, reducing the amount of Port-related truck traffic using local surface streets.

Because of high background traffic volumes and high existing truck traffic volumes, traffic added by the Maximum Marine/Maximum Rail Alternative would not have a significant effect on noise levels associated with freeway traffic.

Figure 5-3
Rail Noise Along 60 MPH Segments
Combined Freight and AMTRAK Movements



Noise levels along important freeway access routes (such as Maritime and 7th Street at I-880) will increase by 3 to 5 dBA. Because the affected land uses along these roadways generally are not noise-sensitive, this impact is not considered significant.

Noise Generated by Marine Terminal Operations. Ship loading and unloading operations would require a significant amount of on-site truck traffic, container handling, and crane operations. Because these operations would occur more than 3,000 feet from residential or other noise-sensitive land uses, no significant noise impacts are anticipated.

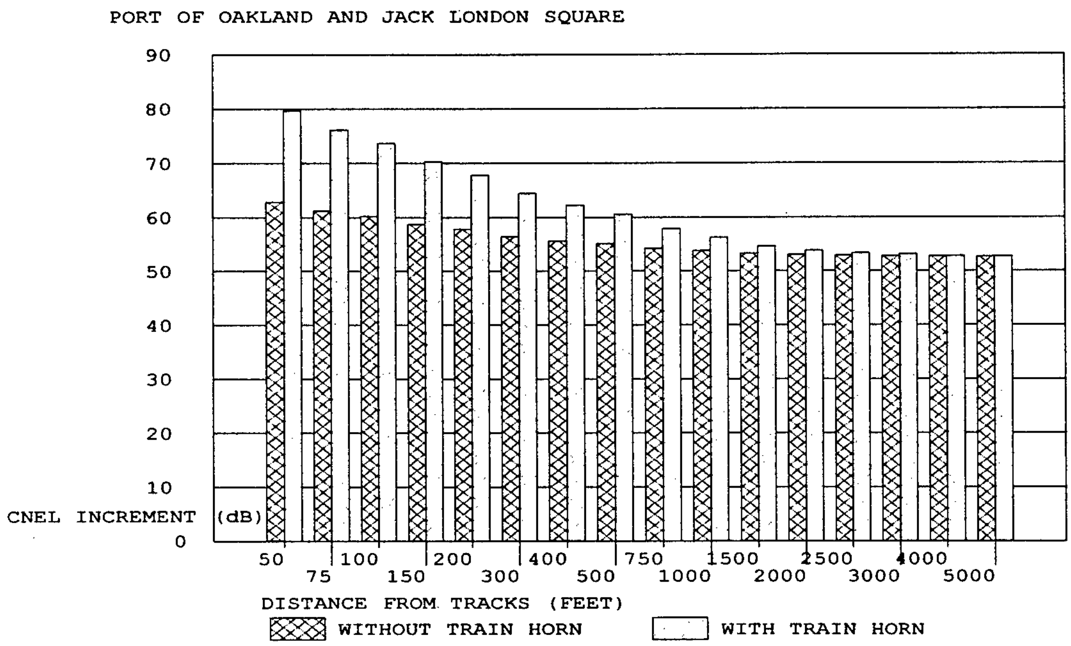
Noise Generated by Railyard Operations. Implementation of the Maximum Marine/Maximum Rail Alternative would increase the amount of rail traffic associated with Port operations. Increased rail shipment activity would increase associated railyard activities, including the coupling of stored rail cars into train assemblies. Coupling of rail cars would generate a banging type impulse noise that is potentially disturbing. Rail car coupling would occur intermittently without any specific schedule.

A typical coupling event is estimated to have a peak noise level of about 91 dBA at 100 feet, with the average noise level over the 4.5-second event being about 83 dBA at 100 feet. These noise levels are about 7 dBA less than those typical of conventional freight train assembly yards that use rail hump coupling procedures.

Much of the rail car coupling activity under the Maximum Marine/Maximum Rail Alternative probably would occur at locations about 1,200 feet from the nearest residential neighborhoods. At this distance, peak noise levels would be about 69 dBA, with average noise levels of about 60 dBA during each impact event. Actual noise levels experienced at the nearest residential neighborhoods are expected to be 5 to 10 dBA lower than these values due to shielding by stacked truck containers in the rail facility. Rail car coupling noise is therefore expected to be comparable to background noise levels in nearby residential neighborhoods and would not result in a significant noise impact.

Rail Traffic Noise South of West Oakland. A limited number of freight trains (about 8) plus several Amtrak trains would use the rail tracks daily south of the proposed rail facility under the Maximum Marine/Maximum Rail Alternative. Railyard configuration changes, some of which are already underway, would reduce the number of trains that travel into the Jack London Square area of Oakland while completing turn around or switching movements. Consequently, there would be a small reduction in future rail noise levels compared to existing conditions in this area. Figure 5-4 illustrates rail noise levels expected at Jack London Square under the Maximum Marine/Maximum Rail Alternative. The reduction from current noise levels makes this a beneficial impact.

Figure 5-4
Rail Traffic Noise Expected at Jack London Square
Maximum Marine/Maximum Rail Alternative



5.1.12 Utilities

The ROI for utilities is the project site, for impacts associated with on-site infrastructure, as well as the local service area that would provide off-site utility services, such as wastewater treatment and landfill disposal.

5.1.12.1 Significance Criteria

An alternative may have significant impacts on a utility or service if it would increase demand in excess of utility system or service capacity to the point that substantial expansion would be necessary. Significant environmental impacts also could result from system deterioration due to improper maintenance or extension of service beyond its useful life. Impacts also would be significant if federal, state, or local standards or requirements regulating a public utility system were violated.

5.1.12.2 Assumptions

Data on current and historic utilities usage were not available for the entire project site. In most cases, utilities usage is related to land use and employment or population levels. Data on historic, current, and projected employment were available, and projected utilities needs were estimated. Each of the four Port reuse alternatives includes potential development, such as an intermodal railyard, marine terminal, and light industrial areas that would result in nominally similar utilities demands compared to historic uses on the project site. None of the alternatives include land uses such as industrial plants or manufacturing that would require

relatively large quantities of utilities to support their operations. The alternatives also do not propose residential development.

Direct employment projected for on-site marine and rail terminal operations ranges from 2,460 to 3,085 jobs for the Minimum Marine/Minimum Rail and Maximum Marine/Minimum Rail Alternatives, respectively (see Section 2.2.6 in Chapter 2). All of the reuse alternatives project less than existing employment recorded directly for the project site. Total employment on the project site was estimated using the 5,591 Navy jobs when FISCO was fully operational (1990) plus 193 current (1996) jobs associated with rail operations (under constrained conditions) at the Southern Pacific West Oakland Railyard and the Union Pacific Intermodal Railyard. The utilities infrastructure at FISCO was sized to serve over 5,000 employees. Capacities for the utility systems serving the Union Pacific, Southern Pacific, and Port properties are not known but are adequate to serve the existing uses at these sites. Therefore, in applying these assumptions, it does not appear that development of any of the Port's four reuse alternatives would pose capacity problems for the existing utilities systems.

Utilities outside of the FISCO site would continue to be provided by present service providers.

5.1.12.3 Not Significant Impacts

Solid Waste. After buildout of the Maximum Marine/Maximum Rail Alternative, it is anticipated that regularly scheduled disposal of solid waste would continue to be handled through a private contractor. Solid waste generated from the Maximum Marine/Maximum Rail Alternative would have no significant environmental impacts.

At the end of 1994, estimated remaining refuse capacity for the Altamont Landfill was 18.9 million tons. At the 1994 rate of fill, the facility would reach capacity in 2006 (Alameda County Waste Management Authority 1995). Projections in the Alameda County Integrated Waste Management Plan indicate that total demand for landfill capacity through 2010 is for 40.3 million tons. Alameda County landfill capacity demand for waste generated within the county for that period amounts to 24.2 million tons (Alameda County Waste Management Authority 1995).

Current countywide landfill capacity is 32,440,114 tons, which is equivalent to 45,242,896 cubic yards (Alameda County Waste Management Authority 1995). There is, therefore, a current capacity shortfall of about eight million tons of landfill capacity to meet projected needs through 2010.

Demolishing the remaining FISCO buildings would generate demolition waste that would be either recycled or disposed. It is estimated that demolition would result in about 570,000 cubic yards of waste under all four reuse alternatives. The 570,000 cubic yards of waste represents only 1.3 percent of the existing landfill

capacity volume. Directly, this is considered a not significant impact because the 1.3 percent impact on available landfill capacity would not cause substantial expansion of existing landfill capacity. Furthermore, the Port is committed to reducing the amount of demolition waste to be landfilled by recycling wood, concrete, and steel debris either on-site or off-site.

Future marine and rail transport activities would be expected to generate less waste than previous industrial and manufacturing activities on the project site. Direct marine and rail terminal on-site employment (estimated at 2,920 jobs) projected for the Maximum Marine/Maximum Rail Alternative would be about one-half the level of total on-site employment (estimated at 5,784 jobs) under previous FISCO operational conditions. This would be a not significant impact.

Water Supply System. Direct marine and rail terminal employment at the project site under buildout of the Maximum Marine/Maximum Rail Alternative would be about one-half the level of total on-site employment under fully operational conditions. Decreased levels of water usage would positively affect regional water supplies. Potential upgrades to the water system, if needed, will have no significant environmental impact.

Sanitary Sewer System. Direct marine and rail terminal employment at the project site under buildout of the Maximum Marine/Maximum Rail Alternative would be about one-half the level of employment under fully operational conditions. Decreased levels of sanitary waste would result in more available capacity to the East Bay Municipal Utility District (EBMUD) system. Furthermore, project construction activities will be designed not to disrupt or interfere with sanitary sewer service to off-site users such as NAS Alameda. Potential upgrades to the sanitary sewer system, if needed, will have no significant environmental impact.

Stormwater System. The stormwater system is subject to ponding during periods of heavy rainfall coupled with high tides. Potential upgrades to this system would have no significant adverse environmental impacts (see Water Resources, Increased Runoff and Ponding).

Electrical, Natural Gas, and Telephone Systems. Potential upgrading of electrical, natural gas, and telephone systems to meet current local standards would have no significant environmental impacts. There is adequate capacity to serve potential future site users under this alternative.

5.1.13 Hazardous Materials and Waste

Hazardous materials and wastes, Installation Restoration Program (IRP) sites, asbestos, PCBs, storage tanks, pesticides, lead, radioactive materials and waste, medical/biohazardous wastes, and ordnance (military weapons, ammunition, and related supplies) are discussed in this section. The ROI relative to hazardous materials and waste issues is the project site and any surrounding area that may have been affected by hazardous materials or hazardous waste originating from the

project site or from which hazardous materials or wastes could migrate onto the project site.

The DOD is committed to all required contamination cleanup at FISCO and the Oakland Army Base resulting from Navy and Army activities prior to disposal of these properties. Delays or restrictions in disposal and reuse of property may occur due to the extent of contamination and the results of both the risk assessment and remedial designs developed for contaminated sites. Examples of conditions resulting in possible land use restrictions would be the long-term monitoring wells or remediation systems. These conditions would have to be considered in the layout of future development.

The Navy and the Army are required to cleanup all hazardous waste prior to disposal of their sites. The Base Realignment and Closure Cleanup Plan (BCP) summarizes the status of the environmental restoration and compliance programs and presents a strategy for carrying out response actions necessary to protect human health and the environment. Impacts associated with hazardous materials and hazardous wastes, therefore, reflect the handling and disposal of such materials under the reuse actions. Small quantities of these materials are expected to be generated, handled, or disposed of by Port operations.

The hazardous waste issues for Union Pacific, Southern Pacific, and other Port properties were unclear at the time this report was prepared. In many cases, an inventory of the hazardous material and hazardous wastes used on these properties and their respective locations of use has not been conducted. At this time, the environmental impact on these properties from current and historic use is unknown. The Port will be responsible for conducting additional environmental investigations on these non-DOD properties as part of project-level environmental documentation to assess the potential concerns and impacts on the development of Union Pacific, Southern Pacific, and other Port properties as part of the Vision 2000 Program. There is a moderate likelihood that surface and subsurface contamination could impact construction activities on these portions of the project site. Development of these areas also could be delayed or limited by the extent and type of contamination encountered on these properties and by future remedial activities.

5.1.13.1 Significance Criteria

The following criteria were used to identify potential impacts:

- Asbestos- or lead-containing dust released during the demolition or renovation of a building;
- Reuses that would require plans or programs under federal, state, or local law and for which no cleanup plans or programs have been developed;
- New operational requirements or service for underground storage tanks and tank systems; and

- hazardous substances.

The rationale used to determine potential significant impacts focused on the possibility of hazardous materials and waste migration. Liquid waste, such as petroleum and PCB, poses a greater threat to humans and the environment because of its migration potential and therefore its ability to impact a large area. Hazardous materials such as ACMs and lead-based paints are usually contained within or in the immediate vicinity of a structure and the range of their impact is typically less than that of a liquid waste.

5.1.13.2 Significant Impacts

Impact 1: Polychlorinated Biphenyls. Potential PCB-contaminated areas at FISCO were identified in previous investigations at the base and included IRP sites 04 and 19. Identifying and replacing PCB-containing electrical equipment has been completed on FISCO. No further remedial action or monitoring is likely to be needed after completing the remedial actions at these two sites.

The hazardous waste issues for PCB-containing electrical equipment on the Union Pacific, Southern Pacific, and Port properties were unclear at the time this report was prepared. An inventory of PCB-containing electrical equipment and the potential impacts of PCB-containing equipment to the subsurface has not been conducted on Union Pacific, Southern Pacific, and other Port properties at the project site. Exposure to PCBs could pose a threat to human health and the environment and is considered a potentially significant and mitigable impact. Construction delays also could be encountered if areas of substantial PCB contamination are detected on any of these properties.

Mitigation 1. The Port and applicable railroad company shall investigate and identify the extent of PCB-containing equipment at unsurveyed portions of the project site, if any, as part of subsequent project-level environmental documentation. The Port and applicable railroad company shall be responsible for ensuring compliance with applicable local, state, and federal regulations regarding the management and proper disposal of any identified PCB-containing equipment or PCB contamination. For example, PCB-containing equipment could be removed and replaced with non PCB-containing equipment. Depending on the results of these additional investigations, the Port and applicable railroad company shall undertake all reasonable measures, as necessary, to ensure the public's health, safety, and well being and to reduce the risk of exposure to PCB-containing equipment consistent with the nature and extent of future industrial reuse activities. Implementing this mitigation would reduce this potentially significant impact to a not significant level.

Impact 2: Storage Tanks. Four underground storage tanks (USTs) are not scheduled to be removed from FISCO prior to property transfer to the Port. These four USTs and all aboveground storage tanks (ASTs) located on FISCO property will become the responsibility of the Port upon transfer of FISCO.

An assessment of current and historic USTs and ASTs and their potential impacts to the subsurface has not been conducted on Union Pacific, Southern Pacific, or other Port properties at the project site. Exposure to contamination caused by USTs or ASTs could result in a threat to human health and the environment and is considered a potentially significant and mitigable impact. Construction delays also may be encountered if areas of contamination from USTs or ASTs are detected on these properties.

Mitigation 2. The Port and applicable railroad company shall assess the potential locations of historic or current USTs and ASTs located within unsurveyed portions of the project site as part of subsequent project-level environmental documentation. Preliminary subsurface investigations shall be conducted adjacent to identified USTs and ASTs that are located in areas where project construction is to take place.

The Port and applicable railroad company shall be responsible for ensuring compliance with applicable local, state, and federal regulations regarding the removal and management of any identified tanks. Tank management procedures could include acceptable leak detection methods, spill and overfill protection, cathodic protection, secondary containment for hazardous waste tank systems, including the piping, and liability insurance. Depending on the results of these additional investigations, the Port and applicable railroad company shall undertake all reasonable measures, as necessary, to ensure the public's health, safety, and well being and to reduce the risk of exposure to USTs and ASTs, consistent with the nature and extent of future industrial reuse activities. Implementing this mitigation would reduce this potentially significant impact to a not significant level.

Impact 3: Oil/Water Separators and Waste Impoundments. Several oil/water separators (OWSs) are located on FISCO, with one being identified as a possible source of contamination at IRP site 14. DOD is committed to all required contamination cleanup at FISCO resulting from Navy activities prior to property disposal.

An assessment of current and historic OWSs and waste impoundments and their associated potential impacts to the subsurface has not been conducted on Union Pacific, Southern Pacific, or Port properties at the project site. There is a moderate to high likelihood that hazardous materials previously were disposed of in impoundments located on the project site. Exposure to contamination caused by OWS or waste impoundments could result in a threat to human health and the environment and is considered a potentially significant and mitigable impact. Construction delays also may be encountered if areas of contamination are detected on these properties as a result of OWSs or waste impoundments.

Mitigation 3. The Port and applicable railroad company shall locate existing and historic OWSs and their potential impacts to human health and the environment shall be evaluated as part of subsequent project-level environmental

documentation. Preliminary subsurface investigations shall be conducted adjacent to OWSs located in areas where construction is to be conducted and that have the potential to impact the subsurface with potentially hazardous substances.

A detailed assessment of the location of historical waste impoundments shall be conducted for the project site. This investigation shall accurately identify the location of all waste impoundments formerly located onsite. Subsurface investigations designed to assess the nature and extent of chemical contaminants in the subsurface shall be conducted in the vicinity of all identified historical impoundments. In some cases, recommendations from remedial risk assessment/feasibility studies may need to be incorporated into the project design.

The Port and applicable railroad company shall be responsible for ensuring compliance with applicable local, state, and federal regulations regarding OWS and waste impoundment management. Depending on the results of additional investigations, the Port shall undertake all reasonable measures, as necessary, to ensure the public's health, safety, and well being and to reduce the risk of exposure to OWSs and waste impoundments, consistent with the nature and extent of future industrial reuse activities. Implementing this mitigation would reduce this potentially significant impact to a not significant level.

Impact 4: Historic Land Use Activities. Historical uses of non-Navy property at the project site may have significantly contaminated surface soils and the subsurface portions of the site. There is a moderate likelihood that some historic activities at the railyard portions of the project site, such as refueling operations, have resulted in a release of contaminants into surface soils or the subsurface. Excavating, grading, or exposing on-site surface soils or subsurface materials could pose a threat to human health and safety and to the environment and is considered a potentially significant and mitigable impact.

Mitigation 4. The Port and applicable railroad company shall assess the location of all historic industrial operations and structures. This assessment shall identify all areas with the potential to have used, store, or generated hazardous materials. Next, a subsurface investigation shall be conducted in areas of proposed excavation, grading, or other form of soil exposure and in areas (if any) that will be left unpaved.

The Port and applicable railroad company shall be responsible for ensuring compliance with applicable local, state, and federal regulations regarding the management of hazardous materials and waste caused by historic land use activities. Depending on the results of these additional investigations, the Port and applicable railroad company shall undertake all reasonable measures, as necessary, to ensure the public's health, safety, and well being and to reduce the risk of exposure to hazardous materials and waste, consistent with the nature and extent of future industrial reuse activities. Implementing this mitigation would reduce this potentially significant impact to a not significant level.

5.1.13.3 Not Significant Impacts

Hazardous Waste Generation. Only minor quantities of hazardous wastes are likely to be generated after implementing the Maximum Marine/Maximum Rail Alternative. These wastes are likely to be associated with equipment and vehicle (e.g., truck, rail cars) maintenance activities at the proposed intermodal rail terminal. No significant impacts associated with hazardous waste generation would occur under the Maximum Marine/Maximum Rail Alternative, and no mitigation would be required.

Hazardous Materials Use. Some hazardous materials, such as petroleum products, solvents, cleaners, pesticides, and herbicides, are likely to be used, stored, and handled as part of the daily operations at the proposed marine and rail terminal facility under the Maximum Marine/Maximum Rail Alternative. Such uses are tightly controlled under current regulations. The quantity of hazardous materials used, stored, and disposed of under the Maximum Marine/Maximum Rail Alternative would likely be comparable to current or historical use at the project site and would not be considered a significant impact.

Hazardous Waste and Materials Management. As the Maximum Marine/Maximum Rail Alternative is implemented, hazardous waste management would be the responsibility of the Port and its tenants. Once the responsibilities of hazardous waste management are allocated, proficiency with those materials and spill response plans may be required by federal, state, and local regulations. Business plans and risk management programs also may be required under state health and safety code requirements. This is considered a not significant impact, and no mitigation is required.

Installation Restoration Program. Implementation of the Maximum Marine/Maximum Rail Alternative on parts of FISCO could be delayed or limited by the extent and type of contamination at IRP sites and by current and future remedial activities. The type of development appropriate for property adjacent to or over an IRP site may be limited by the risk to human health and the environment that the contaminants pose at the site. Since the proposed reuse of FISCO will be for industrial land use, the most likely conflicts between the Maximum Marine/Maximum Rail Alternative and the IRP sites is that some of the IRP reuse areas may not be able to be cleaned up prior to project build-out. These potential delays and limitations would not be a significant environmental impact. No mitigation is required.

Based on the results of the IRP investigations, the Navy may, when appropriate, place limits on land reuse through deed restrictions on conveyances and use restrictions on leases. The Navy also may retain right-of-access to other properties to inspect monitoring wells or to conduct other remedial activities. These restrictions would not constitute a significant impact. No mitigation is required.

Asbestos. Asbestos-containing materials (ACMs) are present in most of the structures at FISCO. DOD's policy is that "property with ACM will not be disposed through the BRAC (Base Realignment and Closure) process unless it is determined that the ACM does not pose a threat to human health at the time of transfer." ACMs that pose a threat to human health are likely to be removed prior to FISCO disposal. However, ACMs that do not pose an immediate health risk are likely to remain in most of the structures at FISCO. These materials may pose future human health risks if they are disturbed or become damaged. ACMs may also be present in some of the structures located on the Union Pacific, Southern Pacific, and other Port properties at the project site. The potential presence of ACMs and the condition of any ACMs on these properties has not been assessed.

Under the Maximum Marine/Maximum Rail Alternative, a number of structures with ACMs on FISCO are to be demolished or renovated. In addition, several structures on the Union Pacific, Southern Pacific, and Port properties also may be demolished or renovated. Demolition activities could result in exposure to ACMs and could pose a threat to human health or the environment.

ACMs will be abated and disposed of in accordance with current regulations when a structure is to be demolished. Port policy requires investigating for asbestos in all buildings not previously surveyed prior to demolition. Demolition activities would be subject to all applicable federal, state, and local regulations. Any demolition or renovation would require compliance with National Emissions Standards for Hazardous Air Pollutants (NESHAPs) and Occupational Safety And Health Administration (OSHA) regulations, as well as state and local regulations, such as those established in the BAAQMD. ACMs will be abated and disposed of in an appropriate disposal facility prior to demolition activities. This is considered a not significant impact.

Pesticides. Pesticide contamination at FISCO will be remediated as part of the IRP program investigations. Routine small-scale pesticide and herbicide usage for weed or rodent control is likely to have taken place on the Union Pacific, Southern Pacific, and Port properties, but it is unlikely that their usage occurred at levels considered a threat to human health or the environment. Pesticide use and storage may occur on a limited scale throughout the project with implementation of the Maximum Marine/Maximum Rail Alternative. However, compliance with applicable regulations governing pesticide use and storage would result in no significant impacts.

Lead. Based on the age of the structures at FISCO and Union Pacific, Southern Pacific, and other Port properties at the project site, lead- based paints are likely to have been applied to the surfaces of the structures on these properties. No comprehensive lead-based paint surveys have been conducted at FISCO, Union Pacific, Southern Pacific, or the Port properties. However, the Port will be responsible for any such inspections and abatements prior to proposed demolition activities.

A number of structures on FISCO will be demolished or renovated under the Maximum Marine/Maximum Rail Alternative. In addition, several structures on Union Pacific, Southern Pacific, and other Port properties may also be demolished or renovated. Demolition activities could result in human exposure to lead-based paint.

Lead-based paint will be removed in accordance with current regulations when a structure is to be demolished. Port policy requires investigating for lead-based paint in all buildings not surveyed prior to demolition. Demolition activities would be subject to all applicable federal, state, and local regulations. This is considered a not significant impact.

Radon. A comprehensive radon survey has been conducted at FISCO, and no radon levels were detected above EPA action levels in any of the structures surveyed. In addition, in accordance with DOD policy, all available and relevant radon assessment data will be included in any contracts for transfer or lease. No radon surveys have been conducted on Union Pacific, Southern Pacific, or other Port properties. However, it is anticipated that there would be no significant impacts associated with reuse activities on these properties that would require future mitigation.

Radioactive Materials and Wastes. Several buildings at FISCO are undergoing radiological close-out surveys. Any radioactive materials or wastes located at FISCO will be removed by the Navy prior to base closure. No long-term storage of radioactive materials is likely to have occurred on Union Pacific, Southern Pacific, or other Port properties. Radioactive materials and waste are not likely to be used, handled, or generated under the Maximum Marine Maximum Rail Alternative. Therefore, the reuse of the property should have no impact.

Medical and Biohazardous Waste. Small quantities of medical and biohazardous wastes have been generated at FISCO. However, it is unlikely that this type of waste was stored long-term at Union Pacific, Southern Pacific, or other Port properties. Medical and biohazardous waste materials are not likely to be handled or generated under the Maximum Marine/Maximum Rail Alternative. Therefore, there would be no impact with implementation of the Maximum Marine/Maximum Rail Alternative.

Ordnance. Ordnance has been stored at FISCO. All ordnance will be removed by the Navy prior to the transfer of the DOD properties. It is not likely that ordnance was stored or used on Union Pacific, Southern Pacific, or other Port properties on a regular basis. Ordnance is not likely to be used or handled on any of the properties under the Maximum Marine/Maximum Rail Alternative. Therefore, implementation of the Maximum Marine/Maximum Rail Alternative should have no impact.

5.2 MINIMUM MARINE TERMINAL/MINIMUM RAIL TERMINAL ALTERNATIVE

Under the Minimum Marine/Minimum Rail Alternative, the entire project site would be owned by the Port. The Port would develop an approximate 190-acre railroad intermodal terminal, one marine terminal in the Oakland Middle Harbor and one in the Outer Harbor (about 100 and 27 acres, respectively), and container storage and truck parking areas. Approximately 14 acres of public waterfront access and 71 acres of marine habitat enhancement in the Middle Harbor also are proposed as part of the Minimum Marine/Minimum Rail Alternative.

5.2.1 Land Use

The ROI would be the same as that presented under the Maximum Marine/Maximum Rail Alternative. The Minimum Marine/Minimum Rail Alternative would not require expanding the Port's jurisdiction to encompass the Southern Pacific Railroad and Union Pacific Railroad properties.

5.2.1.1 Significance Criteria

Significance criteria would be the same as those presented under the Maximum Marine/Maximum Rail Alternative.

5.2.1.2 Not Significant Impacts

Relocation of Port and Railroad Tenants. Implementation of the Minimum Marine/Minimum Rail Alternative would require relocation of a portion of the Harbor Transportation Center to accommodate a marine terminal area, container storage, and truck parking. These uses could be relocated to other areas within the Harbor Transportation Center. The impacts associated with the reconfiguration of the Harbor Transportation Center would not be significant because the change in land use pattern does not conflict with existing and proposed uses at the facility. Also, because these tenants are leasing land from the Port, their relocation does not constitute a significant impact. This reconfiguration would occur on that portion of FISCO reverting to the Port.

Construction and Demolition. Construction and demolition activities proposed under the Minimum Marine/Minimum Rail Alternative would be similar to those discussed under the Maximum Marine/Maximum Rail Alternative, although the Minimum Marine/Minimum Rail Alternative would disturb less acreage at the project site.

Land Use Pattern Reconfiguration. The Minimum Marine/Minimum Rail Alternative would reorganize existing land uses at the project site. As stated for the Maximum Marine/Maximum Rail Alternative, although the pattern of land uses would be reconfigured within the project site, overall land uses would remain the same. Consequently, this would not have a significant impact on the project site. This action would take place on non-Navy property, nonreversionary Navy property, and reversionary Navy property.

5.2.1.3 No Impacts

Removal of Middle Harbor Park. The Minimum Marine/Minimum Rail Alternative would not require removing Middle Harbor Park, and therefore there would be no land use impact to this property.

Land Use Change. Creation of the public waterfront access and marine habitat enhancement area in the Oakland Middle Harbor would be a change from the area's current use as a harbor, docking, storage, and warehouse area. As stated in the Maximum Marine/Maximum Rail Alternative, this would have the beneficial impact of providing additional land for public access, habitat mitigation, and open space. This action would occur on that portion of FISCO reverting to the Port.

5.2.2 Socioeconomics

The ROI would be the same as that presented under the Maximum Marine/Maximum Rail Alternative.

5.2.2.1 Methodology

The methodology for evaluating socioeconomic impacts is the same as that presented for the Maximum Marine/Maximum Rail Alternative.

5.2.2.2 Significance Criteria

Significance criteria would be the same as those presented under the Maximum Marine/Maximum Rail Alternative.

5.2.2.3 No Impacts

Employment and Income. The Minimum Marine/Minimum Rail Alternative would result in the creation of an estimated 5,300 additional jobs (direct and induced) above projected conditions in 2010 without the project. Direct wages and salaries paid under the Minimum Marine/Minimum Rail Alternative would be approximately $569 million, or an estimated $136 million more than without the project. Employment and personal income resulting from the Minimum Marine/Minimum Rail Alternative would be 32 percent higher than without the project. Worker spending of this payroll would create additional economic benefits throughout the Bay Area economy.

Population, Housing, and Schools. As with the Maximum Marine/Maximum Marine Alternative, the Minimum Marine/Minimum Rail Alternative would have no impact on regional population, housing, and schools. The 5,300 additional workers required to fill the additional jobs associated with the Minimum Marine/Minimum Rail Alternative represent only about 0.1 percent of the projected 2010 labor force in the Bay Area, or 0.3 percent of the projected 2010 labor force in the three-county subregion.

5.2.3 Public Services

The ROI would be the same as that presented under the Maximum Marine/Maximum Rail Alternative.

5.2.3.1 Significance Criteria

Significance criteria would be the same as those presented under the Maximum Marine/Maximum Rail Alternative.

5.2.3.2 Not Significant Impacts

Removal of Local Medical Clinic. Southern Pacific's West Oakland Railyard would be unaffected, and the Port branch of the Spectrum Medical Care clinic would not have to be relocated. This facility would continue to provide medical services to the West Oakland community from its present location. Although the number of work-related injuries and traumas may increase during construction and operation of facilities under this alternative, the impact is not significant because the Spectrum Medical Care facility has determined that any increase in demand could be met by the current level of service (Sanders, M., July 10, 1996, personal communication).

Increased Emergency Response Times and Demand for Fire Services. Impacts to fire services would be similar to those described under the Maximum Marine/Maximum Rail Alternative. This would be considered a not significant impact.

Police Services. Impacts to police services would be the same as for the Maximum Marine/Maximum Rail Alternative. Buildout of this alternative would result in a minimal increase in demand for police services, and this demand increase would not constitute a significant impact.

Emergency Medical Services. Not significant impacts to emergency medical services would result from this alternative. Impacts to emergency ambulance services would be the same as for the Maximum Marine/Maximum Rail Alternative. Buildout of this alternative would result in a minimal increase in demand for emergency ambulance services, and this demand increase would not constitute a significant impact.

5.2.4 Cultural Resources

The ROI would be the same as that presented under the Maximum Marine/Maximum Rail Alternative.

5.2.4.1 Significance Criteria

Significance criteria would be the same as those presented under the Maximum Marine/Maximum Rail Alternative.

5.2.4.2 Significant Impacts

Impact 1: Demolition of Historic Buildings and Structures in the Naval Supply Center, Oakland Historic District. The Minimum Marine/Minimum Rail Alternative would have the same affect on the Naval Supply Center, Oakland Historic District at FISCO as that described under the Maximum Marine/Maximum Rail Alternative. This impact would be significant and mitigable.

Mitigation 1. The mitigation for impacts to Naval Supply Center, Oakland Historic District buildings and structures is the same as that identified under the Maximum Marine/Maximum Rail Alternative. Implementing Mitigation 1 would reduce this impact to a level that is not significant.

5.2.4.3 No Impacts

Southern Pacific West Oakland Shops Historic Buildings and Structures. The Minimum Marine/Minimum Rail Alternative does not include work in any part of the Southern Pacific West Oakland Yard. It therefore would have no impact to any NRHP-eligible properties there.

Oakland Army Base Historic Buildings and Structures. The Minimum Marine/Minimum Rail Alternative would have no impact on the Oakland Army Base Historic District. It would not involve any use of the Knight Yard nor would it require demolition of any contributing buildings within the historic district. The Navy has no disposal authority over the Oakland Army Base property.

North Training Wall. The Minimum Marine/Minimum Rail Alternative does not include major work in the Union Pacific Intermodal Railyard; marine terminals would be created in the Oakland Middle Harbor and Outer Harbor. This alternative would have no impact on the north training wall.

Don Gary Investments, Ltd., and Space Assignment Leases. Because no historic buildings and structures were identified on the Don Gary Investments, Ltd., and Space Assignment Port properties, reuse of FISCO and surrounding properties as part of the Minimum Marine/Minimum Rail Alternative is judged to have no impacts on these resources.

Prehistoric, Native American, and Historic Archeological Resources. As described under the Maximum Marine/Maximum Rail Alternative, no prehistoric, Native American, or historic archeological resources listed on or eligible for the NRHP are known to exist within the boundaries of the project site, and therefore the Minimum Marine/Minimum Rail Alternative would have no impact to these resources.

5.2.5 Visual Resources

The ROI would be the same as that presented under the Maximum Marine/Maximum Rail Alternative.

5.2.5.1 Significance Criteria

Significance criteria would be the same as those presented under the Maximum Marine/Maximum Rail Alternative.

5.2.5.2 Not Significant Impacts

Off-site Views from Alameda Shoreline. Compared to the Maximum Marine/Maximum Rail Alternative, visual effects generated by the Minimum Marine/Minimum Rail Alternative on views from existing public access points along the Alameda shore would be less noticeable because of the greater viewing distance to the cranes, smaller number of additional cranes, and less view blockage of scenic background features. The Union Pacific shoreline and Middle Harbor Park would remain in their existing condition. This is considered a not significant impact.

Increased Light and Glare. Light and glare effects on the West Oakland community and housing near the Alameda shoreline would be less noticeable under the Minimum Marine/Minimum Rail Alternative compared to the Maximum Marine/Maximum Rail Alternative due to the relatively small amount of high-mast floodlighting at the rail and marine terminals (relative to the existing levels of lighting) and the greater distance from sensitive residential areas. This is considered a not significant impact.

Views from Port View Park. Loss of existing maritime administration ship cranes and other berthed vessels would reduce the existing visual variety in this scene. The new bay fill and terminal wharves could create visual contrasts in foreground views, depending upon their design. These potential adverse impacts are not considered significant, since the predominantly industrial/maritime character would remain and port activity would still be visible.

Demolition of buildings and multi-story warehouses seen in the foreground would be beneficial, as would potential landscape improvements on the northeastern shoreline of the Middle Harbor to be developed during final design of the public access component for the Minimum Marine/Minimum Rail Alternative. Foreground views of the new marine terminal cranes would introduce new visual contrasts but would not block views of the City Center or East Bay hills and would restore visual interest in this Port-related use area.

Views from Major Transportation Corridors. Effects on views from nearby transportation routes under the Minimum Marine/Minimum Rail Alternative would be similar but somewhat less than that described under the Maximum Marine/Maximum Rail Alternative because of the smaller size of the project site.

Views from West Oakland and Alameda Neighborhoods. As described under the Maximum Marine/Maximum Rail Alternative, views from West Oakland neighborhoods during the day would not be significantly affected. The cranes at the new marine terminals would be visible in some views but would not substantially alter their character. The Minimum Marine/Minimum Rail Alternative would not have a significant impact on views from Alameda neighborhoods.

Views of Rail Terminal Control Tower. As described under the Maximum Marine/Maximum Rail Alternative and depending on its precise location, construction of a six-story control tower at the proposed rail terminal would not be considered a significant visual impact because it would not be visually dominant from highly sensitive viewpoints, such as those within the West Oakland community.

Loss of Distinct Landscape Features. The loss of mature landscaping and architectural features of the existing FISCO officers quarters would eliminate the most distinctive landscape features at this site and would reduce overall scenic quality. However, loss of these resources is not considered a significant visual impact because these resources are not visible to the public, nor are they unique within the East Bay region. In addition, the Minimum Marine/Minimum Rail Alternative would not require removal of any distinct landscape features located on the Southern Pacific West Oakland Railyard, such as the "lattice pole" transmission lines.

Consistency with Plans and Policies. Project consistency under the Minimum Marine/Minimum Rail Alternative with applicable plans and policies would be the same as that discussed for the Maximum Marine/Maximum Rail Alternative.

5.2.5.3 No Impacts

Loss of Visual Access From Middle Harbor Park. The Minimum Marine/Minimum Rail Alternative would not require removing Middle Harbor Park, and therefore there would be no impact to visual resources on this property.

Views from Jack London Square. The Minimum Marine/Minimum Rail Alternative would not introduce new elements into existing views from Jack London Square, and therefore there would be no visual impacts from this viewing location.

Public Access to Oakland Middle Harbor Shoreline and New View Opportunities. Implementing the Minimum Marine/Minimum Rail Alternative would provide some of the public access and viewing benefits described for the Maximum Marine/Maximum Rail Alternative, including creation of some new viewing opportunities. However, the benefit derived would be considerably less compared with the Maximum Marine/Maximum Rail Alternative because of the reduced size of the Middle Harbor area available for public access. Also, the dramatic viewing opportunities from the Western Pacific mole would not be available.

5.2.6 Biological Resources

The ROI would be the same as that presented under the Maximum Marine/Maximum Rail Alternative.

5.2.6.1 Significance Criteria

Significance criteria would be the same as those presented under the Maximum Marine/Maximum Rail Alternative.

5.2.6.2 Significant Impacts

The following section describes those significant impacts to special status species, sensitive habitats, and nonsenstive species and habitats.

Sensitive Habitats

Impact 1: Removal of Eelgrass Beds. The Oakland Middle Harbor eelgrass bed is about 200 square feet in size. Filling the Oakland Middle Harbor could result in sedimentation of this eelgrass bed. This impact would be potentially significant and mitigable. The significance of this impact will be determined through consultation with appropriate resource agencies, including the US Army Corps of Engineers.

Mitigation 1. Implement Mitigation 3 proposed under the Maximum Marine/Maximum Rail Alternative.

5.2.6.3 Not Significant Impacts

Potential Loss of Least Tern Foraging Habitat. No significant impact on California least tern foraging is expected under this alternative. Construction, filling, and dredging activities would be limited to the Oakland Outer Harbor and Middle Harbor, and no alteration of habitat along the Oakland Inner Harbor would take place. The new berths would be located at a greater distance from the tern colony than under the Maximum Marine/Maximum Rail Alternative. Only a fraction of tern foraging occurs in the vicinity of the planned construction, so impacts on the California least tern are unlikely.

Special Status Species. No significant impacts are expected on special status species under the Minimum Marine/Minimum Rail Alternative. California brown pelicans, American peregrine falcon, and winter-run Chinook salmon are infrequent users of the waters off the site, so impacts on these species are unlikely under this alternative.

Nonsensitive Species and Habitats. Herring spawn activity has been documented in the Oakland Outer Harbor (CDFG 1996). However, this impact is not significant given the herrings' abundance and availability of alternative spawning habitat. Furthermore, the California Department of Fish and Game (CDFG) has placed a permit restriction on the Port's berth-side dredging operations.

5.2.6.4 No Impacts

Potential Loss of Burrowing Owl Habitat at Middle Harbor Park. The Minimum Marine/Minimum Rail Alternative would not require removing Middle Harbor Park, and therefore there would no impact to potential burrowing owl habitat on this property.

Displacement of Fish Populations. There would be no impact caused by displacement of fish populations in the Oakland Inner Harbor because no construction activity is planned in this area under the Minimum Marine/Minimum Rail Alternative.

Marine Habitat Enhancement Area. Implementation of the MHEA proposed as part of the public access plan for the Minimum Marine/Minimum Rail Alternative would result in creation of a beneficial environment for enhanced marine and biological resources in the Middle Harbor. Under the Minimum Marine/Minimum Rail Alternative, the MHEA would be less than half the size of that proposed for the Maximum Marine/Maximum Rail Alternative.

Under the Minimum Marine/Minimum Rail Alternative, the southern portion of the Middle Harbor would remain a deep water harbor, precluding the possibility of enhancing the eelgrass bed at the tip of the Western Pacific mole. If the northern portion of the area is to be filled, support, such as a rip-rap wall/reef, would be needed to provide a structure for algal establishment and fish cover. Fishes might then move onto shallow areas to feed. Perched beach located in the northern portion of the site would increase human activity, therefore limiting use by wildlife species. This option provides limited areas for establishment of relatively undisturbed intertidal and subtidal habitat.

5.2.7 Water Resources

The ROI would be the same as that presented under the Maximum Marine/Maximum Rail Alternative.

5.2.7.1 Significance Criteria

Significance criteria would be the same as those presented under the Maximum Marine/Maximum Rail Alternative.

5.2.7.2 Significant Impacts

<u>*Impact 1: Pollutants in Runoff and Adjacent Waters.*</u> Potential generation of water quality contaminants from use of the expanded marine terminal areas and new rail terminal could introduce pollutants including oil and grease, other hydrocarbons, various heavy metals, and other pollutants associated with transportation activities into the runoff stream. This impact is potentially significant and mitigable. The Minimum Marine/Minimum Rail Alternative would require 50 percent less rail and marine terminal acreages and would result in a 20 percent reduction in rail, truck, and marine operations than those under the Maximum Marine/Maximum Rail Alternative. This impact would be less under the Minimum Marine/Minimum Rail Alternative than under the Maximum Marine/Maximum Rail Alternative but would remain significant and mitigable. This impact applies to all areas of the site.

Mitigation 1. The mitigation would be the same as that identified under the Maximum Marine/Maximum Rail Alternative. Implementing Mitigation 1 would reduce this impact to a level that is not significant.

Impact 2: Potential Water Quality Degradation From Dredging Contaminated Material. Dredging of the Oakland Middle Harbor and turning basin from the existing -35 feet mean lower low water (MLLW) to -42 feet could result in increased levels of suspended solids and contaminants, as well as reduced oxygen levels in the water column. Dispersal of contaminants may or may not be significant depending on the types and levels of contaminants present in the sediment, method of dredging, and isolation of the area to be dredged from receiving waters. This impact would be potentially significant and mitigable. The potential and extent of these impacts can only be determined after project-specific sediment testing has been conducted, a disposal or reuse site has been selected, and the dredging methods have been determined.

Mitigation 2. This mitigation would be the same as identified under the Maximum Marine/Maximum Rail Alternative. Implementing Mitigation 2 would reduce this impact to a level that is not significant.

Impact 3: Potential Water Quality Degradation From Reuse or Disposal of Contaminated Materials. The Port is considering several options available for the disposal or reuse of any contaminated material encountered during project dredging; these options are addressed in detail in Section 5.1.7. As described under the Maximum Marine/Maximum Rail Alternative, marine disposal of contaminated dredged sediments could contaminate receiving waters. Disposal of contaminated dredged sediments could also increase local turbidity and suspended sediments and decrease dissolved oxygen at marine disposal sites. These impacts would be potentially significant and mitigable.

Mitigation 3. This mitigation would be the same as that described for the Maximum Marine/Maximum Rail Alternative. Implementing Mitigation 3 would reduce this impact to a level that is not significant.

Impact 4: Water Quality Degradation From Filling. Filling a portion of the Oakland Middle and Outer Harbors under this alternative would increase suspended sediments and the potential for releasing existing contaminants in sediments in those areas. Filling in the Oakland Middle Harbor would be reduced compared with the Maximum Marine/Maximum Rail Alternative; however, this would be mostly offset by increased filling in the Oakland Outer Harbor. This potentially significant and mitigable impact affects reversionary Navy property in the Oakland Middle Harbor and non-Navy Port-owned property in the Oakland Outer Harbor.

Mitigation 4. This mitigation would be the same as that identified under the Maximum Marine/Maximum Rail Alternative. Implementing Mitigation 4 would reduce this impact to a level that is not significant.

5.2.7.3 Not Significant Impacts

Not significant impacts to water resources would the same as those identified under the Maximum Marine/Maximum Rail Alternative.

5.2.8 Geology and Soils

The ROI would be the same as that presented under the Maximum Marine/Maximum Rail Alternative.

5.2.8.1 Significance Criteria

Significance criteria would be the same as those presented under the Maximum Marine/Maximum Rail Alternative.

5.2.8.2 Significant Impacts

Impact 1: Public Exposure to Earthquakes and Damage to Structures and Utilities from Ground Shaking. Seismic shaking would remain a potentially significant and mitigable impact to all areas of the site under the Minimum Marine/Minimum Rail Alternative. Because the area subject to impacts from ground shaking would be smaller, the magnitude of the project-related impacts could be smaller. As with the Maximum Marine/Maximum Rail Alternative, these impacts would include injury or loss of life, damage to structures and utilities, and potential for spills of hazardous materials. Since there would be less waterfront for the marine terminals proposed in the Minimum Marine/Minimum Rail Alternative than under the Maximum Marine/Maximum Rail Alternative (limited to the Oakland Middle Harbor and a short length of the Oakland Outer Harbor), the potential for spills from ground shaking would probably be somewhat less under the Minimum Marine/Minimum Rail Alternative.

Mitigation 1. The mitigation measures for seismic shaking are the same as for the Maximum Marine/Maximum Rail Alternative. Implementing Mitigation 1 would reduce this impact to a level that is not significant.

Impact 2: Damage to Shoreline Slopes, Foundations, Structures, and Utilities from Liquefaction. The impacts from liquefaction under the Minimum Marine/Minimum Rail Alternative would be similar to those under the Maximum Marine/Maximum Rail Alternative. Based on the method of filling (hydraulic) and the nature of the fill sediments (silty sand), it is likely that most of the liquefaction potential in the area would be centered in the FISCO property. Liquefaction also could result in significant impacts in the newly-filled Oakland Outer Harbor marine terminal unless the fill and placement method are designed to reduce the potential for liquefaction. This impact would be potentially significant and mitigable.

Mitigation 2. The mitigation measures for liquefaction are the same as under the Maximum Marine/Maximum Rail Alternative. Implementing Mitigation 2 would reduce this impact to a level that is not significant.

Impact 3: Settlement. Most of the potential settlement of the existing filled areas of the site has already occurred. Newly filled areas would be subject to renewed long-term settlement. The amount of settlement would probably not be large because the Bay Mud is not very thick beneath the site and because new loadings would not differ greatly from existing loadings. However, this would remain a potentially significant and mitigable impact for all areas of the site. Filled habitat in the Middle Harbor could also be significantly affected by settlement.

Mitigation 3. Mitigation measures for soil settlement are the same as described for the Maximum Marine/Maximum Rail Alternative. Implementing Mitigation 3 would reduce this impact to a level that is not significant.

Impact 4: Differential Settlement. Differential settlement under the Minimum Marine/Minimum Rail Alternative could result in impacts similar to those described for the Maximum Marine/Maximum Rail Alternative. The magnitude of the impacts would be smaller due to the smaller project site but could still be a significant and mitigable impact. Differential settlement at the site is primarily a function of the spatial variation in thickness of the Bay Mud. Potential impacts would depend on the location and type of structure or foundation but would be mitigable.

Mitigation 4. The mitigation measures for differential settlement are the same as those described for the Maximum Marine/Maximum Rail Alternative. Implementing Mitigation 4 would reduce this impact to a level that is not significant.

5.2.8.3 Not Significant Impacts

Soil erosion during construction and lateral spreading resulting from liquefaction remain not significant impacts, as described for the Maximum Marine/Maximum Rail Alternative.

5.2.9 Traffic and Circulation

The ROI would be the same as that presented under the Maximum Marine/Maximum Rail Alternative.

The Minimum Marine/Minimum Rail Alternative would generate 5,279 PCE trips during the AM peak hour and 4,650 PCE trips during the PM peak hour. The resulting impact of these additional trips to the transportation network has been determined through calculations of the resulting LOS at fifteen potentially affected intersections and eighteen potentially affected freeway segments serving the project area. Summaries of the LOS analysis and potentially significant impacts are provided in Tables 5-13 and 5-14.

Table 5-13
Minimum Marine/Minimum Rail Alternative
Intersection Level of Service Summary - 2010

	2010 Without Project				Minimum Marine/Minimum Rail Alternative			
Intersection	AM Peak Hour LOS	AM Peak Hour Delay[1]	PM Peak Hour LOS	PM Peak Hour Delay[1]	AM Peak Hour LOS	AM Peak Hour Delay[1]	PM Peak Hour LOS	PM Peak Hour Delay[1]
3. Maritime/Burma	B	8	B	9	B	9	B	10
4. Maritime/14th Street	C	19	C	19	C	21	D	22
5. Maritime/7th Street Extension	B	7	B	10	B	10	B	12
6. 7th Street/7th Street Extension	C	17	C	18	C	18	C	20
7. Gate 2/Middle Harbor Road	B	14	C	19	C	15	C	20
8. 3rd Street/Adeline Street	**E**	**46**	**D**	**38**	**E[2]**	**47**	**E[2]**	**46**
9. 7th Street/Proposed Middle Harbor Road	na	na	na	na	B	9	B	9
10. New Road/Proposed Middle Harbor Road	na	na	na	na	na	na	na	na
12. Maritime/West Grand	C	17	C	18	C	17	C	19
13. Adeline/5th Street/1-880 Southbound Ramps	C	21	C	20	C	20	C	21
14. Union/5th Street/I-880 Northbound Ramps	C	17	C	16	C	17	C	16
15. 7th Street I-880 Northbound Ramp	C	23	C	19	C	21	C	18
16. 7th Street/I-880 Southbound Ramp	A	1	B	6	A	1	B	5
17. 14th Street/I-880 Frontage Road	C	2	C	1	C	3	C	2
18. West Grand/I-880 Frontage Road	C	20	C	21	C	21	C	21

[1] Delay in seconds.
[2] Indicates significant and mitigable impact.
na = Not applicable: intersection would not exist.
Shading indicates location that may experience significant LOS/delay impacts without mitigation.

Source: Dowling Associates 1996

Table 5-14
Minimum Marine/Minimum Rail Alternative
Freeway Level of Service Summary - 2010

	2010 Without Project				Minimum Marine/Minimum Rail Alternative			
Freeway Segment	AM Peak Hour LOS	AM Peak Hour V/C[1]	PM Peak Hour LOS	PM Peak Hour V/C[1]	AM Peak Hour LOS	AM Peak Hour V/C[1]	PM Peak Hour LOS	PM Peak Hour V/C[1]
1. 1-80 at the Bay Bridge								
Eastbound	C	0.61	F	1.18	C	0.62	F	1.19
Westbound[2]	F	1.07	C	0.73	F	1.08	C	0.74
2. I-80 between I-880 and I-580								
Eastbound	B	0.44	C	0.70	B	0.45	C	0.71
Westbound[2]	F	1.08	B	0.41	F	1.08	B	0.41
3. I-80 East of I-80/I-580 Split								
Eastbound	D	0.86	F	1.20	D	0.86	F	1.21
Westbound[2]	F	1.09	F	1.02	F	1.09	F	1.02
4. I-880 Connector to I-80 East								
Northbound	B	0.40	B	0.53	B	0.41	B	0.54
Southbound	C	0.59	C	0.59	C	0.60	C	0.59
5. I-880 Connector to I-80 West								
Northbound	A	0.33	A	0.25	A	0.33	A	0.27
Southbound	A	0.20	A	0.31	A	0.22	A	0.32
6. I-880 North of 7th Street								
Northbound	B	0.40	B	0.40	B	0.40	B	0.40
Southbound	B	0.38	B	0.45	B	0.38	B	0.44
7. I-880 South of 7th Street								
Northbound	C	0.64	B	0.49	C	0.66	B	0.50
Southbound	B	0.42	C	0.68	B	0.43	C	0.69
8. I-880 North of I-980								
Northbound	C	0.63	B	0.48	C	0.65	B	0.49
Southbound	A	0.33	B	0.50	A	0.35	B	0.53
9. I-880 South of I-980								
Northbound	E	0.93	D	0.93	E	0.95	E	0.94
Southbound	C	0.66	C	0.76	C	0.67	D	0.77
10. I-880 North of I-238								
Northbound	F	1.14	F	1.06	F	1.15	F	1.07
Southbound	D	0.90	F	1.19	D	0.91	F	1.21
11. I-880 South of I-238								
Northbound	F	1.17	F	1.20	F	1.19	F	1.20
Southbound	F	1.27	F	1.21	F	1.28	F	1.22
12. I-238								
Eastbound[2]	B	0.53	E	0.95	B	0.53	E	0.96
Westbound	F	1.01	D	0.79	F	1.02	D	0.80
13. I-580 East of I-238								
Eastbound	C	0.65	D	0.89	C	0.66	D	0.89
Westbound	D	0.87	D	0.81	D	0.87	D	0.82
14. I-580 West of I-238								
Eastbound	D	0.93	F	1.01	D	0.93	F	1.01
Westbound	E	0.95	D	0.86	E	0.95	D	0.86
15. I-580 East of I-980/SH-24								
Eastbound	C	0.60	F	1.20	C	0.60	F	1.20
Westbound	F	1.09	C	0.73	F	1.09	C	0.73
16. I-580 West of I-980/SH-24								
Eastbound[2]	C	0.67	F	1.09	C	0.67	F	1.09
Westbound	E	0.98	C	0.73	E	0.99	C	0.73
17. I-980								
Northbound[2]	B	0.43	E	0.94	B	0.42	E	0.94
Southbound	D	0.83	B	0.48	D	0.83	B	0.48
18. SH-24 East of I-580								
Eastbound[2]	A	0.30	F	1.11	A	0.31	F	1.11
Westbound[2]	F	1.01	B	0.46	F	1.01	B	0.47

[1] Volume/Capacity
[2] Freeway segment is excluded from compliance with Alameda County CMA standards.
Note: No significant impacts would occur on any of the freeway segments.
Source: Dowling Associates 1996

5.2.9.1 Significance Criteria

Significance criteria would be the same as those presented under the Maximum Marine/Maximum Rail Alternative.

5.2.9.2 Assumptions and Methodology

Assumptions and methodology would be same as those presented under the Maximum Marine/Maximum Rail Alternative.

5.2.9.3 Significant Impacts

Impact 1: Peak Hour Traffic at Local Intersections. AM and PM peak hour traffic for the Minimum Marine/Minimum Rail Alternative would result in traffic congestion at the intersection of 3rd Street and Adeline Street. The level of service at this intersection would be LOS E during both the AM and PM peak hours.

Mitigation 1: At the Middle Harbor Road/3rd Street Intersection, the required improvements would include restriping the east and westbound 3rd Street approaches. The restriping would convert the combination left/through lanes to left turn only. This modification would allow conversion of the existing split phasing to standard protected left turn phasing. These modifications would improve the level of service to LOS D during the AM peak hour and LOS C during the PM peak hours, and would mitigate the traffic impact at this intersection to a level of not significant.

5.2.9.4 Not Significant Impacts

Freeways. Traffic would be added to some Bay area freeway segments. The greatest increase in traffic would be on I-880 south of I-980, where traffic would increase by 138 PCEs during the AM peak hour and 88 PCEs during the PM peak hour. Project traffic would not result in significant impacts on any of the freeway segments. Detailed data on freeway levels of service are contained in Appendix J.8.

Railroad/Highway Crossings. Gate down time at railroad/highway grade crossings would increase by about 7 percent compared to conditions in 2010 without the project for eleven grade crossings north of the project site. The greatest increase in gate down time would be at 65th, 66th and 67th Streets, where gate down time would increase from 56 minutes per day to 60 minutes per day. The increase in gate down time represents a 0.3 percent increase in the likelihood of a motor vehicle being stopped at a grade crossing. South of the project site the gate down time would not be affected. Detailed data on railroad/highway grade crossings are contained in Appendix J.9.

Parking. Future automobile parking demand generated by Minimum Marine/Minimum Rail Alternative land uses would total approximately 2,447 spaces. Plans for development of this project alternative would include more than enough parking to satisfy the demand.

Transit Service. Some increase in demand for transit services could result from this alternative but would be less than those projected under the Maximum Marine/Maximum Rail Alternative. Transit impacts are not expected to be significant.

Bicycle and Pedestrian System Impacts. Development of The Minimum Marine/Minimum Rail Alternative could increase the number of pedestrians and bicyclists in the area. The Minimum Marine/Minimum Rail Alternative would provide separate pedestrian and bicycle facilities along the northern perimeter shoreline of the Middle Harbor as part of the public access plan proposed for this alternative. These improved circulation systems would adequately accommodate the pedestrian and bicycle traffic generated by this alternative and could benefit the West Oakland community by providing additional opportunities for shoreline access separate from proposed marine and rail terminal activities.

Consistency with Transportation Plans and Regulations. Similar to the Maximum Marine/Maximum Rail Alternative, The Minimum Marine/Minimum Rail Alternative would be consistent with the city's transportation goals and objectives.

Neighborhood Impacts. Impacts associated with through traffic and on-street truck parking in the West Oakland neighborhood are anticipated to be similar, albeit smaller, than those described under the Maximum Marine/Maximum Rail Alternative. These impacts are not anticipated to be significant.

5.2.10 Air Quality

The ROI would be the same as that presented under the Maximum Marine/Maximum Rail Alternative.

5.2.10.1 Significance Criteria

Significance criteria would be the same as those presented under the Maximum Marine/Maximum Rail Alternative.

5.2.10.2 Significant Impacts

<u>*Impact 1: Transportation-Related Air Pollutant Emissions.*</u> The Minimum Marine/Minimum Rail Alternative would result in increased auto, truck, rail, and ship activity at the Port. As shown in Tables 5-9 and 5-10 in Section 5.1.10, the Minimum Marine/Minimum Rail Alternative would result in a net increase of 33 tons per year of reactive organic compound emissions, 396 tons per year of nitrogen oxide emissions, 147 tons per year of carbon monoxide emissions, 85 tons per year of sulfur oxide emissions, and 80 tons per year of PM_{10} emissions. The Minimum Marine/Minimum Rail Alternative would increase regionwide emissions from transportation sources by about 0.5 percent for nitrogen oxides and sulfur oxides, and by about 0.06 percent for other pollutants. These net emission increases exceed the BAAQMD impact significance criteria of 15 tons per year for ozone and PM_{10} precursors. Although these emission increases are less

than those for the Maximum Marine/Maximum Rail Alternative, they still represent a significant unmitigable air quality impact.

Mitigation 1. As discussed under the Maximum Marine/Maximum Rail Alternative, no feasible mitigation measures have been identified for this impact.

Impact 2: Construction and Demolition. The Minimum Marine/Minimum Rail Alternative would have less total construction and demolition activity than the Maximum Marine/Maximum Rail Alternative. The required construction activity probably would occur over a shorter time than that required for the Maximum Marine/Maximum Rail Alternative. Nevertheless, the extent of construction activity during peak construction periods might be similar to that expected for the Maximum Marine/Maximum Rail Alternative. Consequently, air quality impacts from construction and demolition activities would be generally similar to those discussed for the Maximum Marine/Maximum Rail Alternative.

Mitigation 2. The mitigation measures for construction dust are the same as for the Maximum Marine/Maximum Rail Alternative, Mitigation 2. Implementing Mitigation 2 would reduce this impact to a not significant level.

5.2.10.3 Not Significant Impacts

Carbon Monoxide Concentrations from Area Traffic. Potential carbon monoxide concentrations generated by afternoon peak hour traffic conditions have been modeled using the CALINE4 dispersion model (Benson 1989). Modeling results for all project alternatives are summarized in Table 5-11 in Section 5.1.10. Maximum predicted carbon monoxide concentrations for the Minimum Marine/Minimum Rail Alternative are 6.5 parts per million (ppm) as a 1-hour average and 5.1 ppm as an 8-hour average. California ambient air quality standards for carbon monoxide are 20 ppm for a 1-hour average and 9 ppm for an 8-hour average. The Minimum Marine/Minimum Rail Alternative would not cause or contribute to ambient carbon monoxide impacts in the West Oakland area.

Asbestos and Lead Particles from Demolition Activities. The potential for release of lead- or asbestos-contaminated materials would be similar to that discussed for the Maximum Marine/Maximum Rail Alternative. Compliance with existing federal, state, and BAAQMD regulations during building demolition or remodeling would prevent significant airborne releases of these materials. Consequently, this impact is considered to be not significant.

Land Use Compatibility Conflicts. The potential for land use compatibility conflicts due to odors or hazardous air pollutant emissions would be similar to that discussed for the Maximum Marine/Maximum Rail Alternative. This impact is considered to be not significant.

5.2.10.4 No Impacts

Federal Clean Air Act Conformity. As described under the Maximum Marine/Maximum Rail Alternative, the Vision 2000 Program would not likely be subject to Clean Air Act conformity determination requirements and no impacts are expected.

5.2.11 Noise

The ROI would be the same as that presented under the Maximum Marine/Maximum Rail Alternative.

5.2.11.1 Significance Criteria

Significance criteria would be the same as those presented under the Maximum Marine/Maximum Rail Alternative.

5.2.11.2 Not Significant Impacts

Rail Traffic Noise North and East of West Oakland. Rail traffic between Oakland and the Central Valley under the Minimum Marine/Minimum Rail Alternative would be less than discussed for the Maximum Marine/Maximum Rail Alternative (see Table 5-12 and Figure 5-3 in Section 5.1.11). Noise levels along the rail line would also be lower than those under the Maximum Marine/Maximum Rail Alternative. Locations within about 750 feet of the tracks would still be exposed to CNEL levels above 65 dB, but net noise level increases compared to the No Action Alternative (conditions in 2010 without the project) would not be more than 3 dB. This is considered a not significant impact.

Construction and Demolition. The Minimum Marine/Minimum Rail Alternative would have less total construction and demolition activity than the Maximum Marine/Maximum Rail Alternative. The required construction activity would occur over a shorter time than that required for the Maximum Marine/Maximum Rail Alternative. Nevertheless, the extent of construction activity during peak construction periods might be similar to that expected for the Maximum Marine/Maximum Rail Alternative.

Noise from construction activities would not be a significant disruption to on-site industrial activities. Construction activities associated with construction of new ship berths would be more than one mile from the nearest West Oakland residential neighborhoods. Construction activity associated with container storage and rail facilities would be at least 2,400 feet from neighboring West Oakland residential areas, with much of the construction activity more than one-half mile from these neighborhoods. These distances are sufficient to avoid any significant noise impacts from construction activity.

Noise Generated by Vehicle Traffic. Port expansion associated with the Minimum Marine/Minimum Rail Alternative would generate an increased volume of auto and truck traffic headed to or from the Port. The added truck traffic, in

particular, has the potential for increasing traffic noise levels in neighborhoods adjacent to area freeways and along major freeway access routes.

Because of high background traffic volumes and high existing truck traffic volumes, traffic added by the Minimum Marine/Minimum Rail Alternative would not have a significant effect on noise levels associated with freeway traffic. Noise levels along important freeway access routes (such as Maritime and Seventh Street at I-880) would increase by 3 to 5 dBA. Because the affected land uses along these roadways generally are not noise-sensitive, this impact is not considered significant.

Noise Generated by Marine Terminal Operations. Ship loading and unloading operations would require a significant amount of on-site truck traffic, container handling, and crane operations. Because these operations would occur more than 2,000 feet from residential or other noise-sensitive land uses, no significant noise impacts are anticipated.

Noise Generated by Railyard Operations. Most of the rail car coupling activity associated with the Minimum Marine/Minimum Rail Alternative would occur at locations about 2,400 feet from the nearest residential neighborhoods. At this distance, peak noise levels in the residential areas would be about 62 dBA, with average noise levels of about 53 dBA during each railcar coupling event. These noise levels would not be a significant impact.

Rail Traffic Noise South of West Oakland. Rail operations south of the Port area would be comparable to those discussed for the Maximum Marine/Maximum Rail Alternative. The minor reduction in rail operations noise through the Jack London Square area would represent a beneficial impact.

5.2.12 Utilities

The ROI would be the same as that presented under the Maximum Marine/Maximum Rail Alternative.

5.2.12.1 Significance Criteria

Significance criteria would be the same as those presented under the Maximum Marine/Maximum Rail Alternative.

5.2.12.2 Assumptions

The assumptions used in the utilities impact analysis are the same as those described for the Maximum Marine/Maximum Rail Alternative.

5.2.12.3 Significant Impacts

No significant impacts to utilities systems or solid waste management service and landfill capacity would result under the Maximum Marine/Maximum Rail Alternative.

5.2.12.4 Not Significant Impacts

Solid Waste. After buildout of the Minimum Marine/Minimum Rail Alternative, it is anticipated that regularly scheduled disposal of solid waste would continue to be handled through a private contractor. Solid waste generated from the Minimum Marine/Minimum Rail Alternative would be similar to that described under the Maximum Marine/Maximum Rail Alternative, and would have no significant environmental impacts.

Water Supply System. Direct marine and rail terminal employment at the project site under buildout of the Minimum Marine/Minimum Rail Alternative (estimated at 2,460 jobs) would be less than one-half the level of total on-site employment when FISCO was fully operational. Decreased levels of water usage would positively affect regional water supplies. Potential upgrades to the water system, if needed, will have no significant environmental impact.

Sanitary Sewer System. Employment under buildout of the Minimum Marine/Minimum Rail Alternative would be less than one-half the level of employment when FISCO was fully operational. Decreased levels of sanitary waste would result in more available capacity to the EBMUD system. Furthermore, project construction activities will be designed not to disrupt or interfere with sanitary sewer service to off-site users, such as NAS Alameda. Potential upgrades to the sanitary sewer system, if needed, will have no significant environmental impact.

Stormwater System. Similar to the Maximum Marine/Maximum Rail Alternative, the stormwater system is subject to ponding during periods of heavy rainfall coupled with high tides. Potential upgrades to this system would have no significant adverse environmental impacts.

Electrical, Natural Gas, and Telephone Systems. Similar to the Maximum Marine/Maximum Rail Alternative, potential upgrading of electrical, natural gas, and telephone systems to meet current local standards would have no significant environmental impacts. There is adequate capacity to serve potential future site users under this alternative.

5.2.13 Hazardous Materials and Waste

The ROI would be the same as that presented under the Maximum Marine/Maximum Rail Alternative.

5.2.13.1 Significance Criteria

Significance criteria would be the same as those presented under the Maximum Marine/Maximum Rail Alternative.

5.2.13.2 Significant Impacts

Impact 1. Polychlorinated Biphenyls. The discussion of potential significant and mitigable impacts resulting from exposure to PCBs is the same as described under the Maximum Marine/Maximum Rail Alternative.

Mitigation 1. This mitigation would the same as that identified under the Maximum Marine/Maximum Rail Alternative. Implementing Mitigation 1 would reduce this impact to a level that is not significant.

Impact 2. Storage Tanks. The discussion of potential significant and mitigable impacts resulting from exposure to USTs and ASTs is the same as that described under the Maximum Marine/Maximum Rail Alternative.

Mitigation 2. This mitigation would the same as that identified under the Maximum Marine/Maximum Rail Alternative. Implementing Mitigation 2 would reduce this impact to a level that is not significant.

Impact 3. Oil/Water Separators and Waste Impoundments. The discussion of potential significant and mitigable impacts resulting from exposure to OWSs and waste impoundments is the same as that described under the Maximum Marine/Maximum Rail Alternative.

Mitigation 3. This mitigation would the same as that identified under the Maximum Marine/Maximum Rail Alternative. Implementing Mitigation 3 would reduce this impact to a level that is not significant.

Impact 4. Historic Land Use Activities. The discussion of potential significant and mitigable impacts resulting from historic land use activities at the project site is the same as that described under the Maximum Marine/Maximum Rail Alternative. This is considered a potentially significant and mitigable impact.

Mitigation 4. This mitigation would the same as that identified under the Maximum Marine/Maximum Rail Alternative. Implementing Mitigation 4 would reduce this impact to a level that is not significant.

5.2.13.3 Not Significant Impacts

Hazardous Waste Generation. Impact determinations are expected to be similar to those identified for the Maximum Marine/Maximum Rail Alternative. The quantities of hazardous waste generated on-site probably would be somewhat lower than those expected under the Maximum Marine/Maximum Rail Alternative. No mitigation is required.

Hazardous Materials Use. Impact determinations are expected to be similar to those identified for the Maximum Marine/Maximum Rail Alternative. The quantities of hazardous materials used, stored, and handled on-site probably would

be somewhat lower than those expected under the Maximum Marine/Maximum Rail Alternative due to the smaller project site. No mitigation is required.

Impact determinations are expected to be similar (i.e., not significant) to those identified for the Maximum Marine/Maximum Rail Alternative, and no mitigation is required for the following topics:

- Hazardous waste and materials management;
- Installation Restoration Program;
- Asbestos;
- Pesticides;
- Lead;
- Radon;
- Radioactive materials and wastes;
- Medical and biohazardous waste; and
- Ordnance.

5.3 MAXIMUM MARINE TERMINAL/MINIMUM RAIL TERMINAL ALTERNATIVE

Under the Maximum Marine/Minimum Rail Alternative, the entire project site would be owned by the Port. The Port would develop an approximately 190-acre intermodal rail terminal, an approximately 290-acre marine terminal area with five berths, and container storage and truck parking areas. Approximately 39 acres of public waterfront access and 200 acres of marine habitat enhancement in the Middle Harbor also are proposed as part of the Maximum Marine/Minimum Rail Alternative.

5.3.1 Land Use

The ROI would be the same as that presented under the Maximum Marine/Maximum Rail Alternative. The Maximum Marine/Minimum Rail Alternative would not require expanding the Port's jurisdiction onto Southern Pacific property but would require expansion onto the Union Pacific property and a portion of the Oakland Army Base.

5.3.1.1 Significance Criteria

Significance criteria would be the same as those presented under the Maximum Marine/Maximum Rail Alternative.

5.3.1.2 Significant Impacts

Impact 1: Removal of Middle Harbor Park. The proposed location of some marine terminal, container storage, and truck parking areas would displace the approximately one-acres Middle Harbor Park on the Oakland Inner Harbor. Displacing this park would impact the proposed route of the San Francisco Bay Trail through the project site as discussed under the Maximum Marine/Maximum Rail Alternative. This impact is significant and mitigable and would take place on non-Navy property owned by the Port.

Mitigation 1. Implement the same mitigation presented under the Maximum Marine/Maximum Rail Alternative. However, under the Maximum Marine/Minimum Rail Alternative, up to 39 acres could be developed as public access. Implementing Mitigation 1 would reduce this impact to a level that is not significant.

5.3.1.3 Not Significant Impacts

Relocation of Port and Railroad Tenants. Under the Maximum Marine/Minimum Rail Alternative, the Harbor Transportation Center would need to be relocated, as described in the Maximum Marine/Maximum Rail Alternative. The impacts associated with this action are not significant because it would not entail a substantial alteration of existing uses in the project site vicinity and because tenants are leasing land from the Port. This action would take place on non-Navy property.

Construction and Demolition. Construction and demolition activities proposed under the Maximum Marine/Minimum Rail Alternative would be similar to those

discussed under the Maximum Marine/Maximum Rail Alternative, although the Maximum Marine/Minimum Rail Alternative would disturb fewer acres than the Maximum Marine/Maximum Rail Alternative at the project site.

Land Use Pattern Reconfiguration. The Maximum Marine/Minimum Rail Alternative would reorganize existing land uses at the project site. As stated for the Maximum Marine/Maximum Rail Alternative, although the pattern of land uses would be reconfigured within the project site, overall land uses would remain the same. Consequently, this would not have a significant impact on the project site. This action would take place on non-Navy property, nonreversionary Navy property, and reversionary Navy property.

5.3.1.4 No Impacts

Land Use Change. As described under the Maximum Marine/Maximum Rail Alternative, creation of the public waterfront access and habitat improvements in the Oakland Middle Harbor would be a change from the area's current use as a harbor, docking, storage, and warehouse area. As stated in the Maximum Marine/Maximum Rail Alternative, this would have the beneficial impact of providing additional land for public access, habitat mitigation, and open space. This action would occur on that portion of FISCO reverting to the Port.

5.3.2 Socioeconomics

The ROI would be the same as that presented under the Maximum Marine/Maximum Rail Alternative.

5.3.2.1 Methodology

The methodology for evaluating socioeconomic impacts is the same as that presented for the Maximum Marine/Maximum Rail Alternative.

5.3.2.2 Significance Criteria

Significance criteria would be the same as those presented under the Maximum Marine/Maximum Rail Alternative.

5.3.2.3 No Impacts

Employment and Income. The Maximum Marine/Minimum Rail Alternative would generate more employment and income than any other reuse alternative. It would result in the creation of an estimated 11,000 additional new jobs (direct and indirect) above conditions in 2010 without the project. Direct wages and salaries paid under the Maximum Marine/Minimum Rail Alternative would be approximately $718 million, or an estimated $285 million more than without the project. Employment and personal income resulting from the Maximum Marine/Minimum Rail Alternative would be 66 percent higher than without the project. Worker spending of this payroll would create additional economic benefits throughout the Bay Area economy.

Population, Housing, and Schools. Although the Maximum Marine/Minimum Rail Alternative would be the highest employment generator of all the Port's reuse alternatives, it would have no measurable impact on regional population, housing, and schools. The 11,000 workers needed to fill the new direct and induced jobs that would be created under the Maximum Marine/Minimum Rail Alternative would represent less than 0.3 percent of the Bay Area's projected 2010 labor force or less than 0.6 percent of the projected three-county labor force.

5.3.3 Public Services

The ROI would be the same as that presented under the Maximum Marine/Minimum Rail Alternative.

5.3.3.1 Significance Criteria

Significance criteria would be the same as those presented under the Maximum Marine/Maximum Rail Alternative.

5.3.3.2 Not Significant Impacts

Removal of Local Medical Clinic. Construction and buildout of the Maximum Marine/Minimum Rail Alternative would not remove the local medical clinic located on the Southern Pacific railyard. Any increase in demand for medical services at this clinic could be met by current levels of service and therefore would not be a significant impact.

Increased Emergency Response Times and Demand for Fire Services. Impacts to fire services would be similar to those described under the Maximum Marine/Maximum Rail Alternative. This is considered a not significant impact.

Police Services. Impacts to police services would be the same as for the Maximum Marine/Maximum Rail Alternative. Buildout of this alternative would result in a minimal increase in demand for police services, and this demand increase would not constitute a significant impact.

Emergency Medical Services. Impacts to emergency ambulance services would be the same as for the Maximum Marine/Maximum Rail Alternative. Buildout of this alternative would result in a minimal demand increase to emergency ambulance services; however, this demand increase would not constitute a significant impact.

5.3.4 Cultural Resources

The ROI would be the same as that presented under the Maximum Marine/Maximum Rail Alternative.

5.3.4.1 Significance Criteria

Significance criteria would be the same as those presented under the Maximum Marine/Maximum Rail Alternative.

5.3.4.2 Significant Impacts

Impact 1: Demolition of Historic Buildings and Structures in the Naval Supply Center, Oakland Historic District. The Maximum Marine/Minimum Rail Alternative would have the same affect on the Naval Supply Center, Oakland Historic District at FISCO as that described under the Maximum Marine/Maximum Rail Alternative. This impact would be significant and mitigable and would occur on both reversionary Navy property and nonreversionary Navy property.

Mitigation 1. The mitigation measures for impacts to historic buildings and structures in the Naval Supply Center, Oakland Historic District are the same as identified under the Maximum Marine/Maximum Rail Alternative. Implementing Mitigation 1 would reduce this impact to a level that is not significant.

Impact 2: Demolition of Historic Buildings and Structures in the Oakland Army Base Historic District. The Maximum Marine/Minimum Rail Alternative would result in an adverse effect to the Oakland Army Base Historic District on non-Navy property in two respects. First, it would expand the proposed rail terminal into the Oakland Army Base Knight Yard, a contributing element of the district. Second, it would demolish or modify a number of on-site buildings. It appears that demolition would occur partly in the southeast quadrant, which is not part of the historic district, and the northeast quadrant, which is part of the historic district. Current plans do not allow for precise identification of the number of contributing buildings that would be demolished, but it appears that at least seven large warehouse buildings could be demolished under this scenario. Other nonhistoric buildings may be demolished as well. The Maximum Marine/Minimum Rail Alternative would result in an adverse effect and a substantial adverse change to this historic property that could be mitigated. The Navy has no disposal authority over the Oakland Army Base property and any decision allowing Port use of this land would require separate Army approval.

The following mitigation represents a range of options available to the Port that may be selected to reduce this impact to a level that is not significant. These measures may be revised, or additional measures may be added during the next tier of environmental review.

Mitigation 2. Options for mitigating adverse effects to Oakland Army Base historic buildings and structures are similar to those identified for impacts to FISCO historic buildings and structures (Impact 1). These should include recording the yards and affected buildings to HABS standards prior to demolition, under conditions set forth by the National Park Service; phasing demolition, so that buildings would be removed only as needed; and donating rails or other surplus material to a nonprofit railroad museum. The specific mitigations for impacts to Oakland Army Base historic buildings and structures would be specified, if required, in a MOA among ACHP, SHPO, the Army, and the Port, as part of subsequent environment documentation. Implementing Mitigation 2 in

a manner consistent with federal laws and regulations would reduce these impacts to a level that is not significant.

Impact 3: Demolition of the North Training Wall. Similar to the Maximum Marine/Maximum Rail Alternative, implementation of the Maximum Marine/Minimum Rail Alternative would require extensive work in the Union Pacific Intermodal Railyard and would result in an adverse effect and substantial adverse change to the north training wall. This would be a significant and mitigable impact.

Mitigation 3. The mitigation measures for impacts to the north training wall are the same as those identified for the Maximum Marine/Maximum Rail Alternative. Implementing Mitigation 3 would reduce this impact to a level that is not significant.

5.3.4.3 No Impacts

Southern Pacific West Oakland Shops Historic Buildings and Structures. This alternative does not contemplate work in any part of the Southern Pacific West Oakland Yard. It therefore will have no effect on any of the NRHP-eligible properties there.

Don Gary Investments, Ltd., and Space Assignment Leases. Because no historic buildings and structures were identified on the Don Gary Investments, Ltd., and Space Assignment Port properties, reuse of FISCO and surrounding properties as part of the Maximum Marine/Minimum Rail Alternative is judged to have no impacts on these resources.

Prehistoric, Native American, and Historic Archeological Resources. As described under the Maximum Marine/Maximum Rail Alternative, no prehistoric, Native American, or historic archeological resources listed on or eligible for the NRHP are known to exist within the boundaries of the project site and therefore there are no impacts to these resources.

5.3.5 Visual Resources

The ROI would be the same as that presented under the Maximum Marine/Maximum Rail Alternative.

5.3.5.1 Significance Criteria

Significance criteria would be the same as those presented under the Maximum Marine/Maximum Rail Alternative.

5.3.5.2 Significant Impacts

Impact 1: Off-site Views from Alameda Shoreline. Implementing the Maximum Marine/Minimum Rail Alternative would result in changed views from public access points along the Alameda shore of the Oakland Inner Harbor. Visual effects would be the same as those described for the Maximum Marine/Maximum

Rail Alternative, and these would be considered potentially significant and mitigable.

Mitigation 1. Implementing the mitigation measures described in the Maximum Marine/Maximum Rail Alternative would reduce impacts to a level that is not significant.

Impact 2: Loss of Visual Access from Middle Harbor Park. Visual impacts associated with loss of visual access from Middle Harbor Park under the Maximum Marine/Minimum Rail Alternative would be similar to those described for the Maximum Marine/Maximum Rail Alternative and would be significant and mitigable.

Mitigation 2. Implementing the mitigation measures described in the Maximum Marine/Maximum Rail Alternative would reduce impacts to a level that is not significant.

5.3.5.3 Not Significant Impacts

Increased Light and Glare. Light and glare effects on the West Oakland community and housing near the Alameda shoreline would be similar to those described for the Maximum Marine/Maximum Rail Alternative. This is considered a not significant impact.

Views from Jack London Square Area. Effects on off-site views from the Jack London Square area would be similar to that described for the Maximum Marine/Maximum Rail Alternative and would not be considered a significant impact.

Views from Port View Park. The effects of the Maximum Marine/Minimum Rail Alternative on views from Port View Park would be similar to those described for the Maximum Marine/Maximum Rail Alternative, depending on design, and would be considered adverse but not significant impacts.

Views from Major Transportation Corridors. The effects of the Maximum Marine/Minimum Rail Alternative on views from nearby major transportation corridors would be similar to those described for the Maximum Marine/Maximum Rail Alternative and would not be considered significant visual impacts.

Views from West Oakland and Alameda Neighborhoods. As described under the Maximum Marine/Maximum Rail Alternative, views from West Oakland and Alameda neighborhoods during the day would not be significantly affected.

Views of Intermodal Rail Terminal Control Tower. As described under the Maximum Marine/Maximum Rail Alternative, construction of a six-story control

tower at the proposed rail terminal would not be considered a significant visual impact.

Loss of Distinct Landscape Features. Similar to the Maximum Marine/Maximum Rail and Minimum Marine/Minimum Rail Alternatives, loss of the remaining mature landscaping and FISCO officers quarters would eliminate the most distinctive landscape features at FISCO and would reduce overall scenic quality. However, loss of these resources, located on reversionary Navy property, is not considered a significant impact because these resources are not visible to the public, and are not unique within the East Bay region. Similar to the Minimum Marine/Minimum Rail Alternative, the Maximum Marine/Minimum Rail Alternative would not require removal of any distinct landscape features located on the Southern Pacific West Oakland Railyard.

Consistency with Plans and Policies. Project consistency with applicable plans and policies would be the same as described for the Maximum Marine/Maximum Rail Alternative.

5.3.5.4 No Impacts

Public Access to Oakland Middle Harbor Shoreline and New View Opportunities. Implementation of the Maximum Marine/Minimum Rail Alternative would provide similar public access and viewing benefits to those described for the Maximum Marine/Maximum Rail Alternative, including creation of new highly scenic viewing area at the Western Pacific mole.

5.3.6 Biological Resources

The ROI would be the same as that presented under the Maximum Marine/Maximum Rail Alternative.

5.3.6.1 Significance Criteria

Significance criteria would be the same as those presented under the Maximum Marine/Maximum Rail Alternative.

5.3.6.2 Significant Impacts

The following section describes those significant impacts to special status species, sensitive habitats, and nonsenstive species and habitats.

Special Status Species

Impact 1: Potential Loss of Least Tern Foraging Habitat. This impact is the same as that identified for the Maximum Marine/Maximum Rail Alternative. Short-term siltation associated with construction of new berths in the Oakland Inner Harbor and proposed filling activity in the Oakland Middle Harbor may impact the California least terns' ability to find food in the Oakland Inner Harbor. These impacts are potentially significant, short-term (during construction), and mitigable, and would occur on non-Navy property in the Oakland Inner Harbor.

Mitigation 1. Mitigations will be the same as identified for the Maximum Marine/Maximum Rail Alternative. Implementing Mitigation 1 would reduce this impact to a level that is not significant.

Impact 2: Potential Loss of Burrowing Owl Habitat. This impact is the same as that identified for the Maximum Marine/Maximum Rail Alternative. Development of the marine terminals could remove potential burrowing owl habitat at Middle Harbor Park. This impact is considered potentially significant and mitigable.

Mitigation 2: Mitigations would be the same as identified for the Maximum Marine/Maximum Rail Alternative. Implementing Mitigation 2 would reduce this impact to a level that is not significant.

Sensitive Habitats

Impact 3: Removal of Eelgrass Beds. This impact is the same as that identified for the Maximum Marine/Maximum Rail Alternative. Construction of the proposed marine terminal would completely remove the Oakland Inner Harbor eelgrass bed. Filling the Oakland Middle Harbor could result in sedimentation of the Oakland Middle Harbor eelgrass bed. This impact is potentially significant and mitigable. This impact would occur in waters that are non-Navy property.

Mitigation 3. Mitigations will be the same as identified for the Maximum Marine/Maximum Rail Alternative. Implementing Mitigation 3 would reduce this impact to a level that is not significant.

5.3.6.3 Not Significant Impacts

Special Status Species. Not significant impacts to special status species would be the same as that identified for the Maximum Marine/Maximum Rail Alternative.

Nonsensitive Species and Habitats. Not significant impacts to nonsensitive species and habitats would be the same as that identified for the Maximum Marine/Maximum Rail Alternative.

Displacement of Fish Populations. Not significant impacts associated with fish population displacement in the Oakland Inner Harbor would be the same as those identified for the Maximum Marine/Maximum Rail Alternative.

5.3.6.4 No Impacts

Marine Habitat Enhancement Area. Implementation of the MHEA proposed as part of the public access plan for the Maximum Marine/Minimum Rail Alternative would result in creation of a beneficial environment for enhanced marine and biological resources in the Middle Harbor. Under the Maximum Marine/Minimum Rail Alternative, the MHEA would be about 33 acres larger than that proposed for the Maximum Marine/Maximum Rail Alternative. A brief evaluation of this MHEA follows.

The southern portion of the site is likely to attract periodic high levels of human activity. The more sensitive area around the end of the Western Pacific mole (i.e., the eel grass bed) may be disturbed by activity. Changing the use of the western end of the mole to low intensity usage may be preferable and would reduce affects of human activity on biological enhancement.

An intertidal sand beach is proposed for the entire perimeter of the Oakland Middle Harbor. Human activity would be greater along the southern area, with wading and swimming as potential uses of that area. Beach access also would be allowed at the northern area on a perched beach. This area is reasonably protected and may allow for establishment of mudflat habitat in the intertidal and subtidal zones.

The eastern edge of the harbor is an almost vertical rock wall. This plan proposes to fill in deeper portions and to establish an intertidal sand beach. The eastern edge is likely to remain an intertidal area, although it eventually may become a muddy area. The western off-shore portion of the area may be appropriate for one or more small islands.

5.3.7 Water Resources

The ROI would be the same as that presented under the Maximum Marine/Maximum Rail Alternative.

5.3.7.1 Significance Criteria

Significance criteria would be the same as those presented under the Maximum Marine/Maximum Rail Alternative.

5.3.7.2 Significant Impacts

Impact 1: Pollutants in Runoff and Adjacent Waters. As with the Maximum Marine/Maximum Rail Alternative, potential generation of water quality contaminants from use of the expanded marine terminal areas and new rail terminal could introduce pollutants into the runoff stream, including oil and grease, other hydrocarbons, various heavy metals, and other pollutants associated with transportation activities. Overall operation levels under the Maximum Marine/Minimum Rail Alternative would be similar to those under the Maximum Marine/Maximum Rail Alternative, although acreages would be reduced by about 25 percent. Impacts on water quality from the Maximum Marine/Minimum Rail Alternative could be somewhat less than for the Maximum Marine/Maximum Rail Alternative, but would still be potentially significant and mitigable.

Mitigation 1. Mitigation would be the same as identified under the Maximum Marine/Maximum Rail Alternative. Implementing Mitigation 1 would reduce these impacts to a level that is not significant.

Impact 2: Potential Water Quality Degradation From Dredging Contamination Material. This alternative would include berth-front dredging along the Oakland

Inner Harbor; however, filling in the Oakland Middle Harbor would be reduced substantially compared with the Maximum Marine/Maximum Rail Alternative.

Similar to the Maximum Marine/Maximum Rail Alternative, dredging of the Oakland Inner Harbor could result in increased levels of suspended solids and contaminants, as well as reduced oxygen levels in the water column. Because the Maximum Marine/Minimum Rail Alternative involves substantially less fill than the Maximum Marine/Maximum Rail Alternative (about 35 acres versus about 59 acres), this impact would be less under the Maximum Marine/Minimum Rail Alternative. Dispersal of contaminants may or may not be significant depending on the types and levels of contaminants present in the sediment, method of dredging, and isolation of the area to be dredged from receiving waters. This impact would be potentially significant and mitigable. The potential and extent of these impacts can only be determined after project-specific sediment testing has been conducted, a disposal or reuse site has been selected, and the dredging methods have been determined.

Mitigation 2. Mitigation would be the same as described for the Maximum Marine/Maximum Rail Alternative. Implementing Mitigation 2 would reduce these impacts to a level that is not significant.

Impact 3: Potential Water Quality Degradation From Reuse or Disposal of Contaminated Material. Impacts associated with reuse or disposal of uncontaminated material would be similar under this alternative to those described for the Maximum Marine/Maximum Rail Alternative, but the amount of materials to be reused/disposed would be reduced. This impact could be potentially significant and mitigable.

Mitigation 3. Mitigation would be the same as identified under the Maximum Marine/Maximum Rail Alternative. Implementing Mitigation 3 would reduce these impacts to a level that is not significant.

Impact 4: Water Quality Degradation From Filling. Filling a portion of the Oakland Middle Harbor under this alternative could increase suspended solids and reduce dissolved oxygen in that area. This impact would be reduced compared with the Maximum Marine/Maximum Rail Alternative. This potentially significant and mitigable impact affects reversionary Navy property in the Oakland Middle Harbor.

Mitigation 4. Mitigation would be the same as that identified under the Maximum Marine/Maximum Rail Alternative. Implementing Mitigation 4 would reduce these impacts to a level that is not significant.

5.3.7.3 Not Significant Impacts

Not significant impacts to water resources would be the same as identified for the Maximum Marine/Maximum Rail Alternative.

5.3.8 Geology and Soils

The ROI would be the same as that presented under the Maximum Marine/Maximum Rail Alternative.

5.3.8.1 Significance Criteria

Significance criteria would be the same as those presented under the Maximum Marine/Maximum Rail Alternative.

5.3.8.2 Significant Impacts

Impact 1: Public Exposure to Earthquakes and Damage to Structures and Utilities From Ground Shaking. Seismic shaking would be a potentially significant and mitigable impact under the Maximum Marine/Minimum Rail Alternative. However, the reduced area of the project would result in a lower magnitude of the overall impact.

Mitigation 1. Mitigation would be the same as for the Maximum Marine/Maximum Rail Alternative. Implementing Mitigation 1 would reduce this impact to a level that is not significant.

Impact 2: Damage to Shoreline Slopes, Foundations, Structures, and Utilities From Liquefaction. The impacts from liquefaction would be similar to those described for the Maximum Marine/Maximum Rail Alternative, except that no additional filled land would be created for the intermodal rail terminal. The area potentially affected by liquefaction impacts would be somewhat less than for the Maximum Marine/Maximum Rail Alternative because of the smaller amount of placed fill. This impact would be a potentially significant and mitigable impact.

Mitigation 2. The mitigation measures for liquefaction are the same as those described for the Maximum Marine/Maximum Rail Alternative. Implementing Mitigation 2 would reduce this impact to a level that is not significant.

Impact 3: Settlement. The types and magnitudes of impacts from settlement would be similar under the Maximum Marine/Minimum Rail Alternative as for the Maximum Marine/Maximum Rail Alternative, but a smaller area would be affected. The Maximum Marine/Minimum Rail Alternative includes no new filled land for the rail terminal, reducing the area subject to settlement hazards. This would be a potentially significant and mitigable impact.

Mitigation 3. Mitigation measures for soil settlement are the same as those for the Maximum Marine/Maximum Rail Alternative. Implementing Mitigation 3 would reduce these impacts to a level that is not significant.

Impact 4: Differential Settlement. Differential settlement could occur in some areas of the site, as described under the Maximum Marine/Maximum Rail Alternative, and would remain a potentially significant and mitigable impact on roads, pavements, structures, and utilities.

Mitigation 4. The mitigation measures for differential settlement are the same as those described for the Maximum Marine/Maximum Rail Alternative. Implementing Mitigation 4 would reduce these impacts to a level that is not significant.

5.3.8.3 Not Significant Impacts

Soil erosion during construction and lateral spreading resulting from liquefaction remain not significant impacts, as described for the Maximum Marine/Maximum Rail Alternative.

5.3.9 Traffic and Circulation

The ROI would be the same as that presented under the Maximum Marine/Maximum Rail Alternative.

The Maximum Marine/Minimum Rail Alternative would generate 6,448 PCE trips during the AM peak hour and 5,706 PCE trips during the PM peak hour. The resulting impact of these additional trips to the transportation network has been determined through calculations of the resulting LOS at fifteen potentially affected intersections and eighteen potentially affected freeway segments serving the project area. Summaries of the LOS analysis and potentially significant impacts are provided in Tables 5-15 and 5-16.

5.3.9.1 Significance Criteria

Significance criteria would be the same as those presented under the Maximum Marine/Maximum Rail Alternative.

5.3.9.2 Assumptions and Methodology

Assumptions and methodology would be the same as those presented under the Maximum Marine/Maximum Rail Alternative.

5.3.9.3 Significant Impacts

Impact 1: Peak Hour Traffic at Local Intersections. AM and PM peak hour traffic for the Maximum Marine/Minimum Rail Alternative would result in traffic congestion at the intersection of 3rd Street and Adeline Street. The level of service at this intersection would drop to LOS F during both the AM and PM peak hours.

Mitigation 1: At the Middle Harbor Road/3rd Street Intersection, the required improvements would include restriping the east and westbound 3rd Street approaches. The restriping would convert the combination left/through lanes to left turn only. This modification would allow conversion of the existing split phasing to standard protected left turn phasing. These modifications would improve the level of service to LOS D during both the AM and PM peak hours and would mitigate the traffic impact at this intersection to a not significant level.

Table 5-15
Maximum Marine/Minimum Rail Alternative
Intersection Level of Service Summary - 2010

	2010 Without Project				Maximum Marine/Minimum Rail Alternative			
Intersection	AM Peak Hour LOS	AM Peak Hour Delay[1]	PM Peak Hour LOS	PM Peak Hour Delay[1]	AM Peak Hour LOS	AM Peak Hour Delay[1]	PM Peak Hour LOS	PM Peak Hour Delay[1]
3. Maritime/Burma	B	8	B	9	B	8	B	9
4. Maritime/14th Street	C	19	C	19	C	20	C	19
5. Maritime/7th Street Extension	B	7	B	10	B	12	B	12
6. 7th Street/7th Street Extension	C	17	C	18	C	24	D	29
7. Gate 2/Middle Harbor Road	B	14	C	19	C	16	C	21
8. 3rd Street/Adeline Street	**E**	**46**	**D**	**38**	**F[2]**	**111**	**F[2]**	**91**
9. 7th Street/Proposed Middle Harbor Road	na	na	na	na	C	20	C	20
10. New Road/Proposed Middle Harbor Road	na	na	na	na	na	na	na	na
12. Maritime/West Grand	C	17	C	18	C	17	C	18
13. Adeline/5th Street/1-880 Southbound Ramps	C	21	C	20	C	28	C	22
14. Union/5th Street/I-880 Northbound Ramps	C	17	C	16	C	17	B	15
15. 7th Street I-880 Northbound Ramp	C	23	C	19	C	22	C	17
16. 7th Street/I-880 Southbound Ramp	A	1	B	6	A	1	B	5
17. 14th Street/I-880 Frontage Road	C	2	C	1	D	3	D	2
18. West Grand/I-880 Frontage Road	C	20	C	21	C	21	C	22

[1] Delay in seconds.
[2] Indicates significant and mitigable impact.
na = Not applicable: intersection would not exist.
Shading indicates location that may experience significant LOS/delay impacts without mitigation.

Source: Dowling Associates 1996

Table 5-16
Maximum Marine/Minimum Rail Alternative
Freeway Level of Service Summary - 2010

Freeway Segment	2010 Without Project				Maximum Marine/Minimum Rail Alternative			
	AM Peak Hour		PM Peak Hour		AM Peak Hour		PM Peak Hour	
	LOS	V/C[1]	LOS	V/C[1]	LOS	V/C[1]	LOS	V/C[1]
1. I-80 at the Bay Bridge								
Eastbound	C	0.61	F	1.18	C	0.62	F	1.19
Westbound[2]	F	1.07	C	0.73	F	1.08	C	0.74
2. I-80 between I-880 and I-580								
Eastbound	B	0.44	C	0.70	B	0.44	C	0.70
Westbound[2]	F	1.08	B	0.41	F	1.08	B	0.40
3. I-80 East of I-80/I-580 Split								
Eastbound	D	0.86	F	1.20	D	0.86	F	1.21
Westbound[2]	F	1.09	F	1.02	F	1.09	F	1.02
4. I-880 Connector to I-80 East								
Northbound	B	0.40	B	0.53	B	0.42	C	0.55
Southbound	C	0.59	C	0.59	C	0.61	C	0.60
5. I-880 Connector to I-80 West								
Northbound	A	0.33	A	0.25	A	0.33	A	0.27
Southbound	A	0.20	A	0.31	A	0.22	A	0.31
6. I-880 North of 7th Street								
Northbound	B	0.40	B	0.40	B	0.39	B	0.39
Southbound	B	0.38	B	0.45	B	0.37	B	0.44
7. I-880 South of 7th Street								
Northbound	C	0.64	B	0.49	C	0.63	B	0.48
Southbound	B	0.42	C	0.68	B	0.41	C	0.67
8. I-880 North of I-980								
Northbound	C	0.63	B	0.48	C	0.63	B	0.48
Southbound	A	0.33	B	0.50	A	0.35	B	0.53
9. I-880 South of I-980								
Northbound	E	0.93	D	0.93	E	0.95	E	0.94
Southbound	C	0.66	C	0.76	C	0.67	D	0.78
10. I-880 North of I-238								
Northbound	F	1.14	F	1.06	F	1.16	F	1.07
Southbound	D	0.90	F	1.19	D	0.91	F	1.22
11. I-880 South of I-238								
Northbound	F	1.17	F	1.20	F	1.19	F	1.21
Southbound	F	1.27	F	1.21	F	1.28	F	1.22
12. I-238								
Eastbound[2]	B	0.53	E	0.95	B	0.53	E	0.96
Westbound	F	1.01	D	0.79	F	1.02	D	0.80
13. I-580 East of I-238								
Eastbound	C	0.65	D	0.89	C	0.66	D	0.89
Westbound	D	0.87	D	0.81	D	0.87	D	0.82
14. I-580 West of I-238								
Eastbound	D	0.93	F	1.01	D	0.93	F	1.01
Westbound	E	0.95	D	0.86	E	0.95	D	0.86
15. I-580 East of I-980/SH-24								
Eastbound	C	0.60	F	1.20	C	0.60	F	1.20
Westbound	F	1.09	C	0.73	F	1.09	C	0.73
16. I-580 West of I-980/SH-24								
Eastbound[2]	C	0.67	F	1.09	C	0.67	F	1.09
Westbound	E	0.98	C	0.73	E	0.99	C	0.73
17. I-980								
Northbound[2]	B	0.43	E	0.94	B	0.42	E	0.94
Southbound	D	0.83	B	0.48	D	0.82	B	0.48
18. SH-24 East of I-580								
Eastbound[2]	A	0.30	F	1.11	A	0.31	F	1.11
Westbound[2]	F	1.01	B	0.46	F	1.01	B	0.47

[1] Volume/Capacity
[2] Freeway segment is excluded from compliance with Alameda County CMA standards.
Note: No significant impacts would occur on any of the freeway segments.
Source: Dowling Associates 1996

5.3.9.4 Not Significant Impacts

Freeways. Traffic would be added to some Bay Area freeway segments. The greatest increase in traffic would be on I-880 south of I-980, where traffic would increase by 174 PCEs during the AM peak hour and 98 PCEs during the PM peak hour. Project traffic would not result in significant impacts on any of the freeway segments. Detailed data on freeway levels of service are contained in Appendix J.8.

Railroad/Highway Crossings. Gate downtime at railroad/highway grade crossings would increase by about 32 percent compared to conditions in 2010 without the project for eleven grade crossings north of the project site. The greatest increase in gate downtime would be at 65th, 66th and 67th Streets, where gate downtime would increase from 56 minutes per day to 74 minutes per day. The increase in gate downtime represents a 1.2 percent increase in the likelihood of a motor vehicle being stopped at a grade crossing. South of the project site the gate downtime would not be affected. Detailed data on railroad/highway grade crossings are contained in Appendix J.9.

Parking. Future automobile parking demand generated by the Maximum Marine/Minimum Rail Alternative land uses would total approximately 2,677 spaces. Plans for developing this project alternative would include more than enough parking to satisfy the demand.

Transit Service. Some increase in demand for transit services could result from this alternative. However, transit impacts are not expected to be significant.

Bicycle and Pedestrian System Impacts. Developing the Maximum Marine/Minimum Rail Alternative could increase the number of pedestrians and bicyclists in the area. The Maximum Marine/Minimum Rail Alternative would provide separate pedestrian and bicycle facilities along the perimeter shoreline of Middle Harbor as part of the public access plan proposed for this alternative. These improved circulation systems would adequately accommodate the pedestrian and bicycle traffic generated by this alternative and could benefit the West Oakland community by providing additional opportunities for shoreline access separate from proposed marine and rail terminal activities.

Consistency with Transportation Plans and Regulations. Similar to the Maximum Marine/Maximum Rail Alternative, the Maximum Marine/Minimum Rail Alternative would be consistent with the city's transportation goals and objectives.

Neighborhood Impacts. Impacts associated with through-traffic and on-street truck parking in the West Oakland neighborhood are anticipated to be similar, albeit somewhat larger, than those described under the Maximum Marine/Maximum Rail Alternative. These impacts are not anticipated to be significant.

5.3.10 Air Quality

The ROI would be the same as that presented under the Maximum Marine/Maximum Rail Alternative.

5.3.10.1 Significance Criteria

Significance criteria would be the same as those presented under the Maximum Marine/Maximum Rail Alternative.

5.3.10.2 Significant Impacts

Impact 1: Transportation-Related Air Pollutant Emissions. The Maximum Marine/Minimum Rail Alternative would result in increased auto, truck, rail, and ship activity at the Port. Emission increases would be slightly greater than for the Maximum Marine/Maximum Rail Alternative. As shown in Tables 5-9 and 5-10 in Section 5.1.10, the Maximum Marine/Minimum Rail Alternative would result in a net increase of 57 tons per year of reactive organic compound emissions, 825 tons per year of nitrogen oxide emissions, 250 tons per year of carbon monoxide emissions, 200 tons per year of sulfur oxide emissions, and 127 tons per year of PM_{10} emissions. The Maximum Marine/Minimum Rail Alternative would increase regionwide emissions from transportation sources by about one percent for nitrogen oxides, 1.5 percent for sulfur oxides, and about 0.1 percent for other pollutants. These net emission increases exceed the BAAQMD impact significance criteria of 15 tons per year for ozone and PM_{10} precursors and thus represent a significant unmitigable air quality impact.

Mitigation 1. As discussed under the Maximum Marine/Maximum Rail Alternative, no feasible mitigation measures have been identified for this impact..

Impact 2: Construction and Demolition. The Maximum Marine/Minimum Rail Alternative would have less total construction and demolition activity than the Maximum Marine/Maximum Rail Alternative but more than the Minimum Marine/Minimum Rail Alternative. The required construction activity probably would occur over a shorter time than required for the Maximum Marine/Maximum Rail Alternative. Nevertheless, the extent of construction activity during peak construction periods might be similar to that expected for the Maximum Marine/Maximum Rail Alternative. Consequently, air quality impacts from construction and demolition activities would be generally similar to those discussed for the Maximum Marine/Maximum Rail Alternative.

Mitigation 2. The mitigation measures for construction dust are the same as for the Maximum Marine/Maximum Rail Alternative. Implementing Mitigation 2 would reduce this impact to a not significant level.

5.3.10.3 Not Significant Impacts

Carbon Monoxide Concentrations from Area Traffic. Potential carbon monoxide concentrations generated by afternoon peak hour traffic conditions have been modeled using the CALINE4 dispersion model (Benson 1989). Modeling results

for all project alternatives are summarized in Table 5-11. Maximum predicted carbon monoxide concentrations for the Maximum Marine/Minimum Rail Alternative are 7.7 parts per million (ppm) as a 1-hour average and 6.1 ppm as an 8-hour average. California ambient air quality standards for carbon monoxide are 20 ppm for a 1-hour average and 9 ppm for an 8-hour average. The Maximum Marine/Minimum Rail Alternative would not cause or contribute to ambient carbon monoxide problems in the West Oakland area. Therefore, carbon monoxide concentrations from area traffic under the Maximum Marine/Minimum Rail Alternative would be a not significant impact and no mitigation would be required.

Asbestos and Lead Particles from Demolition Activities. The potential for release of lead- or asbestos-contaminated materials would be similar to that discussed for the Maximum Marine/Maximum Rail Alternative. Compliance with existing federal, state, and BAAQMD regulations during building demolition or remodeling would prevent significant airborne releases of these materials. Consequently, this impact is considered not significant.

Land Use Compatibility Conflicts. The potential for land use compatibility conflicts due to odors or hazardous air pollutant emissions would be similar to that discussed for the Maximum Marine/Maximum Rail Alternative. This impact is considered not significant.

5.3.10.4 No Impacts

Federal Clean Air Act Conformity. As described under the Maximum Marine/Maximum Rail Alternative, the Vision 2000 Program would not likely be subject to Clean Air Act conformity determination requirements and no impacts are expected.

5.3.11 Noise

The ROI would be the same as that presented under the Maximum Marine/Maximum Rail Alternative.

5.3.11.1 Significance Criteria

Significance criteria would be the same as those presented under the Maximum Marine/Maximum Rail Alternative.

5.3.11.2 Not Significant Impacts

Rail Traffic Noise North and East of West Oakland. Rail traffic between West Oakland and the Central Valley under the Maximum Marine/Minimum Rail Alternative would be almost the same as that discussed for the Maximum Marine/Maximum Rail Alternative. Noise levels along the rail line would be very similar to those under the Maximum Marine/Maximum Rail Alternative, resulting in noise impacts that are not significant.

Construction and Demolition. The Maximum Marine/Minimum Rail Alternative would have less total construction and demolition activity than the Maximum Marine/Maximum Rail Alternative but more than the Minimum Marine/Minimum Rail Alternative. The required construction activity would occur over a shorter time than required for the Maximum Marine/Maximum Rail Alternative. Nevertheless, the extent of construction activity during peak construction periods might be similar to that expected for the Maximum Marine/Maximum Rail Alternative.

Noise from construction activities would not be a significant disruption to on-site activities. Construction activities associated with construction of new ship berths would be more than 3,000 feet from the nearest West Oakland residential neighborhoods. Construction activity associated with container storage and rail facilities would be at least 2,400 feet from neighboring West Oakland residential areas, with much of the construction activity more than one-half mile from these neighborhoods. These distances are sufficient to avoid any significant noise impacts from construction activity.

Noise Generated by Vehicle Traffic. Port expansion associated with the Maximum Marine/Minimum Rail Alternative would generate an increased volume of auto and truck traffic headed to or from the Port. The added truck traffic, in particular, has the potential for increasing traffic noise levels in neighborhoods adjacent to area freeways and along major freeway access routes.

Because of high background traffic volumes and high existing truck traffic volumes, traffic added by the Maximum Marine/Minimum Rail Alternative would not have a significant effect on noise levels associated with freeway traffic. Noise levels along important freeway access routes (such as Maritime and 7th Street at I-880) would increase by 3 to 5 dBA. Because the affected land uses along these roadways generally are not noise-sensitive, this impact is not considered significant.

Noise Generated by Marine Terminal Operations. Ship loading and unloading operations would require a significant amount of on-site truck traffic, container handling, and crane operations. Because these operations would occur more than 3,000 feet from residential or other noise-sensitive land uses, no significant noise impacts are anticipated.

Noise Generated by Railyard Operations. Most of the rail car coupling activity associated with the Maximum Marine/Minimum Rail Alternative would occur at locations about 2,400 feet from the nearest residential neighborhoods. At this distance, peak noise levels in the residential areas would be about 62 dBA, with average noise levels of about 53 dBA during each railcar coupling event. These noise levels would not be a significant impact.

Rail Traffic Noise South of West Oakland. Rail operations south of the Port area would be comparable to those discussed for the Maximum Marine/Maximum Rail Alternative. The minor reduction in rail operations noise through the Jack London Square area would represent a beneficial impact.

5.3.12 Utilities

The ROI would be the same as that presented under the Maximum Marine/Maximum Rail Alternative.

5.3.12.1 Significance Criteria

Significance criteria would be the same as those presented under the Maximum Marine/Maximum Rail Alternative.

5.3.12.2 Not Significant Impacts

Solid Waste. After buildout of the Maximum Marine/Minimum Rail Alternative, it is anticipated that regularly scheduled disposal of solid waste would continue to be handled through a private contractor. Solid waste generated from the Maximum Marine/Minimum Rail Alternative would be similar to that described under the Maximum Marine/Maximum Rail Alternative and would have no significant environmental impacts.

Water Supply System. Direct marine and rail terminal employment at the project site under buildout of the Maximum Marine/Minimum Rail Alternative (estimated at 3,085 jobs) would be slightly more than one-half the level of total on-site employment when FISCO was fully operational. Decreased levels of water usage would positively affect regional water supplies. Potential upgrades to the water system, if needed, will have no significant environmental impact.

Sanitary Sewer System. Direct marine and rail terminal employment at the project site under buildout of the Maximum Marine/Minimum Rail Alternative would be slightly more than one-half the level of employment when FISCO was fully operational. Decreased levels of sanitary waste would result in more available capacity to the EBMUD system. Furthermore, project construction activities will be designed not to disrupt or interfere with sanitary sewer service to off-site users, such as NAS Alameda. Potential upgrades to the sanitary sewer system, if needed, will have no significant environmental impact.

Stormwater System. Similar to the Maximum Marine/Maximum Rail Alternative, the stormwater system is subject to ponding during periods of heavy rainfall coupled with high tides. Potential upgrades to this system would have no significant adverse environmental impacts.

Electrical, Natural Gas, and Telephone Systems. Similar to the Maximum Marine/Maximum Rail Alternative, potential upgrading of electrical, natural gas, and telephone systems to meet current local standards would have no significant

environmental impacts. There is adequate capacity to serve potential future site users under this alternative.

5.3.13 Hazardous Materials and Waste

The ROI would be the same as that presented under the Maximum Marine/Maximum Rail Alternative.

5.3.13.1 Significance Criteria

Significance criteria would be the same as those presented under the Maximum Marine/Maximum Rail Alternative.

5.3.13.2 Significant Impacts

Impact 1. Polychlorinated Biphenyls. The discussion of potential significant and mitigable impacts resulting from exposure to PCBs is the same as that described under the Maximum Marine/Maximum Rail Alternative. An inventory of PCB-containing electrical equipment has been conducted at the Oakland Army Base; however, the status of any electrical equipment containing PCBs is unknown. The Army will be responsible for removing any PCB-containing electrical equipment on the Oakland Army Base prior to reuse of the property.

Mitigation 1. This mitigation would the same as that identified under the Maximum Marine/Maximum Rail Alternative. Implementing Mitigation 1 would reduce this impact to a level that is not significant.

Impact 2. Storage Tanks. The discussion of potential significant and mitigable impacts resulting from exposure to USTs and ASTs is the same as that described under the Maximum Marine/Maximum Rail Alternative. The Army intends on leaving eight USTs in place on the Oakland Army Base. Upon disposal of the Oakland Army Base, the Port would be responsible for maintaining regulatory compliance on all USTs and ASTs located on the Port-owned portion of this base.

Mitigation 2. This mitigation would the same as that identified under the Maximum Marine/Maximum Rail Alternative. Implementing Mitigation 2 would reduce this impact to a level that is not significant.

Impact 3. Oil/Water Separators and Waste Impoundments. The discussion of potential significant and mitigable impacts resulting from exposure to OWSs and waste impoundments is the same as that described under the Maximum Marine/Maximum Rail Alternative. Nine OWSs are located on the Oakland Army Base. DOD is committed to all required contamination cleanup at the Oakland Army Base resulting from Army activities prior to property disposal. This is considered a potentially significant and mitigable impact.

Mitigation 3. This mitigation would the same as that identified under the Maximum Marine/Maximum Rail Alternative. Implementing Mitigation 3 would reduce this impact to a level that is not significant.

Impact 4. Historic Land Use Activities. The discussion of potential significant and mitigable impacts resulting from historic land use activities at the project site is the same as that described under the Maximum Marine/Maximum Rail Alternative. This is considered a potentially significant and mitigable impact.

Mitigation 4. This mitigation would the same as that identified under the Maximum Marine/Maximum Rail Alternative. Implementing Mitigation 4 would reduce this impact to a level that is not significant.

5.3.13.3 Not Significant Impacts

Hazardous Waste Generation. Impact determinations are expected to be similar to those identified for the Maximum Marine/Maximum Rail Alternative. The quantities of hazardous waste generated on-site would probably be somewhat lower than those expected under the Maximum Marine/Maximum Rail Alternative. No mitigation is required.

Hazardous Materials Use. Impact determinations are expected to be similar to those identified for the Maximum Marine/Maximum Rail Alternative. The quantities of hazardous materials used, stored, and handled on-site probably would be somewhat lower than those expected under the Maximum Marine/Maximum Rail Alternative due to the smaller project site. No mitigation is required.

Asbestos. The discussion of asbestos is the same as that described under the Maximum Marine/Maximum Rail Alternative. ACMs are present in most of the structures at the Oakland Army Base. ACMs that pose a threat to human health are likely to be removed prior to Oakland Army Base disposal. ACMs that do not pose an immediate health risk are likely to remain in most of the structures at FISCO and the Oakland Army Base. As described for the Maximum Marine/Maximum Rail Alternative, this is considered a not significant impact.

Lead. The discussion of lead-based paints is the same as that described under the Maximum Marine/Maximum Rail Alternative. Limited surveys have been conducted on the Oakland Army Base. Lead-based paints were detected on the interior and exterior of several structures at the Oakland Army Base. As described for the Maximum Marine/Maximum Rail Alternative, this is considered a not significant impact. Impact determinations are expected to be similar (i.e., not significant) to those identified for the Maximum Marine/Maximum Rail Alternative, and no mitigation is required for the following topics:

- Hazardous waste and materials management;
- Installation Restoration Program;
- Pesticides;
- Radon;
- Radioactive materials and wastes;
- Medical and biohazardous waste; and
- Ordnance.

5.4 REDUCED HARBOR FILL ALTERNATIVE

Under the Reduced Harbor Fill Alternative, the entire project site would be owned by the Port. The Port would develop an approximately 320-acre intermodal rail terminal, an approximately 275-acre marine terminal area with five berths, and container storage and truck parking areas. Approximately 31 acres of public waterfront access and 196 acres of marine habitat enhancement in the Middle Harbor are also proposed as part of the Reduced Harbor Fill Alternative.

5.4.1 Land Use

The ROI would be the same as that presented under the Maximum Marine/Maximum Rail Alternative. Similar to the Maximum Marine/Maximum Rail Alternative, the Reduced Harbor Fill Alternative would require expanding the Port's jurisdiction onto Southern Pacific and Union Pacific properties.

5.4.1.1 Significance Criteria

Significance criteria would be same the as those presented under the Maximum Marine/Maximum Rail Alternative.

5.4.1.2 Significant Impacts

Impact 1: Removal of Middle Harbor Park. The proposed location of some marine terminal, container storage, and truck parking areas would displace Middle Harbor Park. Displacing this park would impact the proposed route of the San Francisco Bay trail through the project site, as discussed under the Maximum Marine/Maximum Rail Alternative. This impact would take place on non-Navy property owned by the Port and would be a significant and mitigable impact.

Mitigation 1. Implement the same mitigation identified for the Maximum Marine/Maximum Rail Alternative. Implementing Mitigation 1 would reduce this impact to a level that is not significant.

5.4.1.3 Not Significant Impacts

Relocation of Port and Railroad Tenants. Under the Reduced Harbor Fill Alternative, the Harbor Transportation Center would need to be relocated, as described in the Maximum Marine/Maximum Rail Alternative. The impacts associated with this action are not significant because it would not entail a substantial alteration of existing uses in the project vicinity and because tenants are leasing land from the Port. This action would take place on non-Navy property.

Demolition and Construction. Demolition and construction activities proposed under the Reduced Harbor Fill Alternative would be similar to those discussed under the Maximum Marine/Maximum Rail Alternative, although the Reduced Harbor Fill Alternative would disturb fewer acres.

Land Use Pattern Reconfiguration. The Reduced Harbor Fill Alternative would reorganize existing land uses at the project site. As stated for the Maximum

Marine/Maximum Rail Alternative, although the pattern of land uses would be reconfigured within the project site, overall land uses would remain the same. This would not have a significant impact on the project site. This action would take place on non-Navy property, nonreversionary Navy property, and reversionary Navy property.

5.4.1.4 No Impacts

Land Use Change. Creation of the public waterfront access and marine habitat enhancement area in the Oakland Middle Harbor would be a change from the area's current use as a harbor, docking, storage, and warehouse area. As stated in the Maximum Marine/Maximum Rail Alternative, this would have the beneficial impact of providing additional land for public access, habitat mitigation, and open space. This action would occur on that portion of FISCO reverting to the Port.

5.4.2 Socioeconomics

The ROI would be the same as that presented under the Maximum Marine/Maximum Rail Alternative.

5.4.2.1 Methodology

The methodology for evaluating socioeconomic impacts is the same as that presented for the Maximum Marine/Maximum Rail Alternative.

5.4.2.2 Significance Criteria

Significance criteria would be the same as those presented under the Maximum Marine/Maximum Rail Alternative.

5.4.2.3 No Impacts

Employment and Income. The Reduced Harbor Fill Alternative would result in the creation of an estimated 10,000 additional new jobs above conditions in 2010 without the project. Direct wages and salaries paid under the Reduced Harbor Fill Alternative would be approximately $690 million, or an estimated $257 million more than without the project. Total employment and personal income resulting from the Reduced Harbor Fill Alternative would be 59 percent higher than without the project. Worker spending of this payroll would create additional economic benefits throughout the Bay Area economy.

Population, Housing, and Schools. As with the Maximum Marine/Maximum Rail Alternative, the Reduced Harbor Fill Alternative would have no effect on regional population, housing, and schools. Labor force demand would be very similar to that associated with the Maximum Marine/Maximum Rail Alternative.

5.4.3 Public Services

The ROI would be the same as that presented under the Maximum Marine/Maximum Rail Alternative.

5.4.3.1 Significance Criteria

Significance criteria would be the same as those presented under the Maximum Marine/Maximum Rail Alternative.

5.4.3.2 Significant Impacts

Impact 1: Removal of Local Medical Clinic. Impacts to medical services would be similar to those under the Maximum Marine/Maximum Rail Alternative. Buildout of this alternative would require removing the Port branch of the Spectrum Medical Care clinic, due to the realignment of railroad tracks on Southern Pacific property. This impact would be significant but mitigable.

Mitigation 1: The mitigations for emergency medical services are the same as those identified for the Maximum Marine/Maximum Rail Alternative. Implementing Mitigation 1 would reduce this impact to a level that is not significant.

5.4.3.3 Not Significant Impacts

Increased Emergency Response Times and Demand for Fire Services. Impacts to fire services would be similar to those described under the Maximum Marine/Maximum Rail Alternative. This is considered a not significant impact.

Police Services. Impacts to police services would be the same as for the Maximum Marine/Maximum Rail Alternative. Buildout of this alternative would result in a minimal increase in demand for police services, and this demand increase would not constitute a significant impact.

Emergency Medical Services. Impacts to emergency ambulance services would be the same as under the Maximum Marine/Maximum Rail Alternative. Buildout of this alternative would result in a minimal increase in demand for emergency ambulance services; however, this demand increase would not constitute a significant impact.

5.4.4 Cultural Resources

The ROI would be the same as that presented under the Maximum Marine/Maximum Rail Alternative.

5.4.4.1 Significance Criteria

Significance criteria would be the same as those presented under the Maximum Marine/Maximum Rail Alternative.

5.4.4.2 Significant Impacts

Impact 1: Demolition of Historic Buildings and Structures in the Naval Supply Center, Oakland Historic District. The Reduced Harbor Fill Alternative would have the same affect on the Navy Supply Center Historic District as that described under the Maximum Marine/Maximum Rail Alternative. This impact would be significant and mitigable.

Mitigation 1. The mitigation measures for impacts to FISCO historic buildings and structures are the same as those identified under the Maximum Marine/Maximum Rail Alternative. Implementing Mitigation 1 would reduce this impact to a level that is not significant.

Impact 2: Demolition of the North Training Wall. Similar to the Maximum Marine/Maximum Rail Alternative, implementing the Reduced Harbor Fill Alternative would require extensive work in the Union Pacific Intermodal Railyard and would result in an adverse effect and substantial adverse change to the north training wall. This would be a significant and mitigable impact.

Mitigation 2. The mitigation measures for impacts to the north training wall are the same as those identified for the Maximum Marine/Maximum Rail Alternative. Implementing Mitigation 2 would reduce this impact to a level that is not significant.

5.4.4.3 No Impacts

Southern Pacific West Oakland Shops Historic District. The rail track alignment under the Reduced Harbor Fill Alternative would not require demolition of the four contributing buildings in the southern subdistrict of the Southern Pacific West Oakland Shops Historic District. It will therefore not result in any adverse effect to this historic district.

Oakland Army Base Historic Buildings and Structures. The Reduced Harbor Fill Alternative would not require alteration to the Knight Yard, a contributing element of the Oakland Army Base Historic District nor will it require any demolition of any contributing buildings within the historic district. It will therefore not result in any adverse effect to this historic district. The Navy has no disposal authority over the Oakland Army Base property.

Don Gary Investments, Ltd., and Space Assignment Leases. Because no historic buildings and structures were identified on the Don Gary Investments, Ltd., and Space Assignment Port properties, reuse of FISCO and surrounding properties as part of the Reduced Harbor Fill Alternative is judged to have no impacts on these resources.

Prehistoric, Native American, and Historic Archeological Resources. As described under the Maximum Marine/Maximum Rail Alternative, no prehistoric, Native American, or historic archeological resources listed on or eligible for the NRHP are known to exist within the boundaries of the project site, and therefore there are no impacts to these resources.

5.4.5 Visual Resources

The ROI would be the same as that presented under the Maximum Marine/Maximum Rail Alternative.

5.4.5.1 Significance Criteria

Significance criteria would be the same as those presented under the Maximum Marine/Maximum Rail Alternative.

5.4.5.2 Significant Impacts

Impact 1: Loss of Visual Access from Middle Harbor Park. Visual impacts resulting from loss of Middle Harbor Park would be similar to those described for the Maximum Marine/Maximum Rail Alternative and would be significant and mitigable.

Mitigation 1. Implement the same mitigation measures described for the Maximum Marine/Maximum Rail Alternative. Implementing Mitigation 1 would reduce these impacts to a level that is not significant.

5.4.5.3 Not Significant Impacts

Off-site Views from Alameda Shoreline. Implementing the Reduced Harbor Fill Alternative could effect views from existing public access points along the Alameda shoreline. However, compared to the Maximum Marine/Maximum Rail and Maximum Marine/Minimum Rail Alternatives, the visual impacts would result in less view blockage by marine terminal cranes of views from the Alameda shoreline towards Yerba Buena Island as a result of the increased setback of the terminal shoreline. This is considered a not significant impact.

Increased Light and Glare. Light and glare effects on the West Oakland Community and housing near the Alameda shoreline would be similar to those described for the Maximum Marine/Maximum Rail Alternative. This is considered a not significant impact.

Views from Jack London Square Area. Effects on off-site views from the Jack London Square area would be similar to those that described for the Maximum Marine/Maximum Rail Alternative and would not be considered a significant impact.

Views from Port View Park. The effects of the Reduced Harbor Fill Alternative on views from Port View Park would be similar to those described for the Maximum Marine/Maximum Rail Alternative, depending on design, and would be considered adverse but not significant impacts.

Views from Major Transportation Corridors. The effects of the Reduced Harbor Fill Alternative on views from nearby major transportation corridors would be similar to those described for the Maximum Marine/Maximum Rail Alternative and would not be considered significant visual impacts.

Views from West Oakland and Alameda Neighborhoods. As described under the Reduced Harbor Fill Alternative, views from West Oakland and Alameda neighborhoods during the day would not be significantly affected.

Views of Intermodal Rail Terminal Control Tower. As described under the Maximum Marine/Maximum Rail Alternative, construction of a six-story control tower at the proposed rail terminal would not be considered a significant visual impact.

Loss of Distinct Landscape Features. As described under the Maximum Marine/Maximum Rail Alternative, the loss of mature landscaping and architectural features of the FISCO officers quarters would eliminate the most distinctive landscape features at FISCO and would reduce overall scenic quality. Implementation of the Reduced Harbor Fill Alternative could also result in loss of four NRHP-eligible historic buildings and the "lattice pole" transmission line towers on the Southern Pacific Railyard. These impacts are not considered significant because they are not viewed by the public and are located in an industrial context of low landscape quality.

Consistency with Plans and Policies. Project consistency with applicable plans and policies would be the same as described for the Maximum Marine/Maximum Rail Alternative.

5.4.5.4 No Impacts

Public Access to Oakland Middle Harbor Shoreline and New View Opportunities. Implementation of the Reduced Harbor Fill Alternative would provide public access and viewing benefits similar to those described for the Maximum Marine/Maximum Rail Alternative, including creation of new highly-scenic viewing opportunities at the Western Pacific mole.

5.4.6 Biological Resources

The ROI would be the same as that presented under the Maximum Marine/Maximum Rail Alternative.

5.4.6.1 Significance Criteria

Significance criteria would be the same as those presented under the Maximum Marine/Maximum Rail Alternative.

5.4.6.2 Significant Impacts

The following section describes those significant impacts to special status species, sensitive habitats, and nonsenstive species and habitats.

Special Status Species

Impact 1: Potential Loss of Least Tern Foraging Habitat. This impact is the same as identified for the Maximum Marine/Maximum Rail Alternative. Short-term siltation associated with construction of new berths in the Oakland Inner Harbor and proposed filling activity in the Oakland Middle Harbor may impact the California least terns' ability to find food in the Oakland Inner Harbor. These impacts are significant, short-term (during construction), and mitigable and would occur on non-Navy property in the Oakland Inner Harbor.

Mitigation 1. Mitigations will be the same as those identified for the Maximum Marine/Maximum Rail Alternative. Implementing Mitigation 1 would reduce this impact to a level that is not significant.

Impact 2: Potential Loss of Burrowing Owl Habitat. This impact is the same as that identified for the Maximum Marine/Maximum Rail Alternative. Development of the marine terminals could remove potential burrowing owl habitat at Middle Harbor Park. This impact is considered potentially significant and mitigable.

Mitigation 2: Mitigations would be the same as identified for the Maximum Marine/Maximum Rail Alternative. Implementing Mitigation 2 would reduce this impact to a level that is not significant.

Sensitive Habitats

Impact 3: Removal of Eelgrass Beds. This impact is the same as that identified for the Maximum Marine/Maximum Rail Alternative. Construction of the proposed marine terminal would completely remove the Oakland Inner Harbor eelgrass bed. Filling the Oakland Middle Harbor could result in sedimentation of the Oakland Middle Harbor eelgrass bed. This impact is significant and mitigable. This impact would occur in waters that are non-Navy property.

Mitigation 3. Mitigations will be the same as those identified for the Maximum Marine/Maximum Rail Alternative. Implementing Mitigation 3 would reduce this impact to a level that is not significant.

5.4.6.3 Not Significant Impacts

Special Status Species. Not significant impacts to special status species would be the same as that identified for the Maximum Marine/Maximum Rail Alternative.

Nonsensitive Species and Habitats. The not significant impact to nonsensitive species and habitats would be the same as that identified for the Maximum Marine/Maximum Rail Alternative.

Displacement of Fish Populations. Not significant impacts associated with fish population displacement in the Oakland Inner Harbor would be the same as that identified for the Maximum Marine/Maximum Rail Alternative.

5.4.6.4 No Impacts

Marine Habitat Enhancement Area. Implementation of the MHEA proposed as part of the public access plan for the Reduced Harbor Fill Alternative would result in creating a beneficial environment for enhanced marine and biological resources in the Middle Harbor. Under the Reduced Harbor Fill Alternative, the MHEA would be about 12 acres larger than that proposed for the Maximum Marine/Minimum Rail Alternative.

Compared with the MHEA proposed for the Maximum Marine/Minimum Rail Alternative, this alternative could offer greater opportunity for habitat enhancement because human activity would be concentrated at Point Arnold, away from habitat areas. Dismantling the tip of the Western Pacific mole would result in increased shallow intertidal areas in the vicinity of the existing eelgrass bed. If this area is maintained as rocky intertidal with adjacent soft substrate (subtidal) at a suitable depth, the habitat for eelgrass will have been established. Transplanting clumps of eelgrass from the Inner Harbor Channel and natural colonization may increase the size and density of the eelgrass bed.

The northern portion of the harbor would be converted to a swimming beach. Offshore areas may support muddy bottom. One or more small islands could be built in the offshore area. The northern portion of the area, while appropriate for creating eelgrass beds and mud flats, is planned for public access, a potentially conflicting use of the area. Habitat enhancement in the northeast corner off the area would benefit from minimal or restricted human access.

5.4.7 Water Resources

The ROI would be the same as that presented under the Maximum Marine/Maximum Rail Alternative.

5.4.7.1 Significance Criteria

Significance criteria would be same as those presented under the Maximum Marine/Maximum Rail Alternative.

5.4.7.2 Significant Impacts

Impact 1: Pollutants in Runoff and Adjacent Waters. With acreages and operation levels similar to the Maximum Marine/Maximum Rail Alternative, potential generation of water quality contaminants from the expanded marine terminal areas and new rail terminal of the Reduced Harbor Fill Alternative could introduce pollutants, including oil and grease, other hydrocarbons, various heavy metals, and other pollutants associated with transportation activities into the runoff stream. These potentially significant impacts would be similar to, or slightly greater than, those of the Maximum Marine/Maximum Rail Alternative but mitigable.

Mitigation 1. Mitigation would be the same as that identified for the Maximum Marine/Maximum Rail Alternative. Implementing Mitigation 1 would reduce this impact to a level that is not significant.

Impact 2: Potential Water Quality Degradation from Dredging of Contaminated Material. Compared to the Maximum Marine/Maximum Rail Alternative, this alternative would result in substantially increased berth-front dredging along the Oakland Inner Harbor and reduced filling in the Oakland Middle Harbor. Dredging for this alternative could result in temporary increases in concentrations of suspended solids and reduced oxygen levels in the water column. Because the Reduced Harbor Fill Alternative involves substantially less fill than the Maximum

Marine/Maximum Rail Alternative, this potentially significant impact would be less under the Reduced Harbor Fill Alternative and would be mitigable.

Mitigation 2. Mitigation would be the same as identified under the Maximum Marine/Maximum Rail Alternative. Implementing Mitigation 2 would reduce this impact to a level that is not significant.

Impact 3: Potential Water Quality Degradation from Reuse or Disposal of Contaminated Material. Impacts of reuse or disposal of contaminated material would be greater under this alternative than with the Maximum Marine/Maximum Rail Alternative because the amount of materials to be disposed of could be nearly doubled. This impact would be significant and mitigable.

Mitigation 3. Mitigation would be the same as that identified for the Maximum Marine/Maximum Rail Alternative. Implementing Mitigation 3 would reduce this impact to a level that is not significant.

Impact 4: Water Quality Degradation from Filing. Filling of a portion of the Oakland Middle Harbor under this alternative would increase suspended solids and potentially release existing contaminants in sediments in those areas. The area to be filled would be reduced substantially compared with the Maximum Marine/Maximum Rail Alternative. This potentially significant and mitigable impact affects reversionary Navy property in the Oakland Middle Harbor.

Mitigation 4. Mitigation would be the same as that identified under the Maximum Marine/Maximum Rail Alternative. Implementing Mitigation 4 would reduce this impact to a level that is not significant.

5.4.7.3 Not Significant Impacts

Not significant impacts to water resources would be the same as those identified for the Maximum Marine/Maximum Rail Alternative.

5.4.8 Geology and Soils

The ROI would be the same as that presented under the Maximum Marine/Maximum Rail Alternative.

5.4.8.1 Significance Criteria

Significance criteria would be the same as those presented under the Maximum Marine/Maximum Rail Alternative.

5.4.8.2 Significant Impacts

Impact 1: Public Exposure to Earthquakes and Damage to Structures and Utilities from Ground Shaking. The impacts from ground shaking during a large earthquake under the Reduced Harbor Fill Alternative would be similar to those described for the Maximum Marine/Maximum Rail Alternative. The area covered by the project would be slightly less than that for the Maximum Marine/Maximum Rail

Alternative, but the potential for damage would be about the same. This would be a potentially significant and mitigable impact.

Mitigation 1. Mitigation measures to reduce the impacts from seismic shaking would be the same as those for the Maximum Marine/Maximum Rail Alternative Implementing Mitigation 1 would reduce this impact to a level that is not significant.

Impact 2: Damage to Shoreline Slopes, Foundations, Structures, and Utilities from Liquefaction. Similar to the Maximum Marine/Maximum Rail Alternative , liquefaction would remain a potentially significant and mitigable impact under the Reduced Harbor Fill Alternative.

Mitigation 2. Mitigation measures to reduce the impacts from liquefaction would be the same as those described for the Maximum Marine/Maximum Rail Alternative. Implementing Mitigation 2 would reduce this impact to a level that is not significant.

Impact 3: Settlement. Settlement would continue at a very slow rate in existing fill areas under existing loadings. New fills and structures that create additional loadings relative to existing loadings would result in renewed settlement and associated impacts similar to those described for the Maximum Marine/Maximum Rail Alternative. This would be a potentially significant and mitigable impact.

Mitigation 3. Mitigation measures to reduce the significance of the impacts from settlement would be the same as those for the Maximum Marine/Maximum Rail Alternative. Implementing Mitigation 3 would reduce this impact to a level that is not significant.

Impact 4: Differential Settlement. Impacts from differential settlement would be similar to those described for the Maximum Marine/Maximum Rail Alternative and would remain potentially significant and mitigable under the Reduced Harbor Fill Alternative.

Mitigation 4. Mitigation measures would be the same as those described for the Maximum Marine/Maximum Rail Alternative. Implementing Mitigation 4 would reduce this impact to a level that is not significant.

5.4.8.3 Not Significant Impacts

Soil erosion during construction and lateral spreading resulting from liquefaction remain not significant impacts, as described for the Maximum Marine/Maximum Rail Alternative.

5.4.9 Traffic and Circulation

The ROI would be the same as that presented under the Maximum Marine/Maximum Rail Alternative.

The Reduced Harbor Fill Alternative would generate 6,318 PCE trips during the AM peak hour and 5,651 PCE trips during the PM peak hour. The resulting impact of these additional trips to the transportation network has been determined through calculations of the resulting LOS at fifteen potentially affected intersections and eighteen potentially affected freeway segments serving the project area. Summaries of the LOS analysis and potentially significant impacts are provided in Tables 5-17 and 5-18.

5.4.9.1 Significance Criteria
Significance criteria would be the same as those presented under the Maximum Marine/Maximum Rail Alternative.

5.4.9.2 Assumptions and Methodology
Assumptions and methodology would be the same as those presented under the Maximum Marine/Maximum Rail Alternative.

5.4.9.3 Significant Impacts
Impact 1: Peak Hour Traffic at Local Intersections. AM and PM peak hour traffic for the Reduced Harbor Fill Alternative would result in traffic congestion at the intersection of 3rd Street and Adeline Street. The level of service at this intersection would drop to LOS F during both the AM and PM peak hours.

Mitigation 1: At the Middle Harbor Road/3rd Street Intersection, the required improvements would include restriping the east and westbound 3rd Street approaches. The restriping would convert the combination left/through lanes to left turn only. This modification would allow conversion of the existing split phasing to standard protected left turn phasing. These modifications would improve the level of service to LOS D during both the AM and PM peak hours, and would mitigate the traffic impact at this intersection to a not significant level.

5.4.9.4 Not Significant Impacts
Freeways. Traffic would be added to some Bay Area freeway segments. The greatest increase in traffic would be on I-880 south of 7th Street, where traffic would increase by 178 PCEs during the AM peak hour and 133 PCEs during the PM peak hour. Project traffic would not result in significant impacts on any of the freeway segments. Detailed data on freeway levels of service are contained in Appendix J.8.

Railroad/Highway Crossings. Gate downtime at railroad/highway grade crossings would increase by about 32 percent compared to conditions in 2010 without the project for eleven grade crossings north of the project site. The greatest increase in gate downtime would be at 65th, 66th and 67th Streets, where gate downtime would increase from 56 minutes per day to 74 minutes per day. The increase in gate downtime represents a 1.2 percent increase in the likelihood of a motor

Table 5-17
Reduced Harbor Fill Alternative
Intersection Level of Service Summary - 2010

Intersection	2010 Without Project				Reduced Harbor Fill Alternative			
	AM Peak Hour		PM Peak Hour		AM Peak Hour		PM Peak Hour	
	LOS	Delay[1]	LOS	Delay[1]	LOS	Delay[1]	LOS	Delay[1]
3. Maritime/Burma	B	8	B	9	B	8	B	9
4. Maritime/14th Street	C	19	C	19	C	20	C	19
5. Maritime/7th Street Extension	B	7	B	10	C	19	B	14
6. 7th Street/7th Street Extension	C	17	C	18	C	15	B	14
7. Gate 2/Middle Harbor Road	B	14	C	19	na	na	na	na
8. 3rd Street/Adeline Street	E	46	D	38	F[2]	82	F[2]	72
9. 7th Street/Proposed Middle Harbor Road	na	na	na	na	C	16	C	17
10. New Road/Proposed Middle Harbor Road	na	na	na	na	D	25	C	16
12. Maritime/West Grand	C	17	C	18	C	16	C	18
13. Adeline/5th Street/1-880 Southbound Ramps	C	21	C	20	C	24	D	30
14. Union/5th Street/I-880 Northbound Ramps	C	17	C	16	C	17	C	16
15. 7th Street I-880 Northbound Ramp	C	23	C	19	C	21	C	18
16. 7th Street/I-880 Southbound Ramp	A	1	B	6	A	1	B	5
17. 14th Street/I-880 Frontage Road	C	2	C	1	C	3	C	2
18. West Grand/I-880 Frontage Road	C	20	C	21	C	21	C	22

[1] Delay in seconds.
[2] Indicates significant and mitigable impact.
na = Not applicable: intersection would not exist.

Shading indicates location that may experience significant LOS/delay impacts without mitigation.

Source: Dowling Associates 1996

Table 5-18
Reduced Harbor Fill Alternative
Freeway Level of Service Summary - 2010

	2010 Without Project				Reduced Harbor Fill Alternative			
Freeway Segment	AM Peak Hour		PM Peak Hour		AM Peak Hour		PM Peak Hour	
	LOS	V/C[1]	LOS	V/C[1]	LOS	V/C[1]	LOS	V/C[1]
1. I-80 at the Bay Bridge								
Eastbound	C	0.61	F	1.18	C	0.62	F	1.19
Westbound[2]	F	1.07	C	0.73	F	1.08	C	0.74
2. I-80 between I-880 and I-580								
Eastbound	B	0.44	C	0.70	B	0.44	C	0.70
Westbound[2]	F	1.08	B	0.41	F	1.08	B	0.40
3. I-80 East of I-80/I-580 Split								
Eastbound	D	0.86	F	1.20	D	0.86	F	1.21
Westbound[2]	F	1.09	F	1.02	F	1.09	F	1.02
4. I-880 Connector to I-80 East								
Northbound	B	0.40	B	0.53	B	0.42	C	0.55
Southbound	C	0.59	C	0.59	C	0.61	C	0.60
5. I-880 Connector to I-80 West								
Northbound	A	0.33	A	0.25	A	0.33	A	0.27
Southbound	A	0.20	A	0.31	A	0.22	A	0.31
6. I-880 North of 7th Street								
Northbound	B	0.40	B	0.40	B	0.41	B	0.41
Southbound	B	0.38	B	0.45	B	0.39	B	0.45
7. I-880 South of 7th Street								
Northbound	C	0.64	B	0.49	C	0.67	B	0.51
Southbound	B	0.42	C	0.68	B	0.44	C	0.70
8. I-880 North of I-980								
Northbound	C	0.63	B	0.48	C	0.65	B	0.49
Southbound	A	0.33	B	0.50	A	0.35	B	0.53
9. I-880 South of I-980								
Northbound	E	0.93	D	0.93	E	0.95	E	0.94
Southbound	C	0.66	C	0.76	C	0.67	D	0.78
10. I-880 North of I-238								
Northbound	F	1.14	F	1.06	F	1.15	F	1.07
Southbound	D	0.90	F	1.19	D	0.91	F	1.21
11. I-880 South of I-238								
Northbound	F	1.17	F	1.20	F	1.19	F	1.20
Southbound	F	1.27	F	1.21	F	1.28	F	1.22
12. I-238								
Eastbound[2]	B	0.53	E	0.95	B	0.53	E	0.96
Westbound	F	1.01	D	0.79	F	1.02	D	0.80
13. I-580 East of I-238								
Eastbound	C	0.65	D	0.89	C	0.66	D	0.89
Westbound	D	0.87	D	0.81	D	0.87	D	0.82
14. I-580 West of I-238								
Eastbound	D	0.93	F	1.01	D	0.93	F	1.01
Westbound	E	0.95	D	0.86	E	0.95	D	0.86
15. I-580 East of I-980/SH-24								
Eastbound	C	0.60	F	1.20	C	0.60	F	1.20
Westbound	F	1.09	C	0.73	F	1.09	C	0.73
16. I-580 West of I-980/SH-24								
Eastbound[2]	C	0.67	F	1.09	C	0.67	F	1.09
Westbound	E	0.98	C	0.73	E	0.99	C	0.73
17. I-980								
Northbound[2]	B	0.43	E	0.94	B	0.42	E	0.94
Southbound	D	0.83	B	0.48	D	0.83	B	0.48
18. SH-24 East of I-580								
Eastbound[2]	A	0.30	F	1.11	A	0.31	F	1.11
Westbound[2]	F	1.01	B	0.46	F	1.01	B	0.46

[1] Volume/Capacity
[2] Freeway segment is excluded from compliance with Alameda County CMA standards.
Note: No significant impacts would occur on any of the freeway segments.
Source: Dowling Associates 1996

vehicle being stopped at a grade crossing. South of the project site the gate downtime would not be affected. Detailed data on railroad/highway grade crossings are contained in Appendix J.9.

Parking. Future parking demand generated by the Reduced Harbor Fill Alternative land uses would total automobile approximately 2,581 spaces. Plans for developing this project alternative would include more than enough parking to satisfy the demand.

Transit Service. Some increase in demand for transit services could result from this alternative. However, transit impacts are not expected to be significant.

Bicycle and Pedestrian System Impacts.. Developing the Reduced Harbor Fill Alternative could increase the number of pedestrians and bicyclists in the area. The Reduced Harbor Fill Alternative would provide separate pedestrian and bicycle facilities along the perimeter shoreline of Middle Harbor as part of the public access plan proposed for this alternative. These improved circulation systems would adequately accommodate the pedestrian and bicycle traffic generated by this alternative and could benefit the West Oakland community by providing additional opportunities for shoreline access separate from proposed marine and rail terminal activities.

Consistency with Transportation Plans and Regulations. Similar to the Maximum Marine/Maximum Rail Alternative, the Reduced Harbor Fill Alternative would be consistent with the city's transportation goals and objectives.

Neighborhood Impacts. Impacts associated with through-traffic and on-street truck parking in the West Oakland neighborhood are anticipated to be similar, albeit somewhat larger, than those described under the Maximum Marine/Maximum Rail Alternative. These impacts are not anticipated to be significant.

5.4.10 Air Quality

The ROI would be the same as that presented under the Maximum Marine/Maximum Rail Alternative.

5.4.10.1 Significance Criteria

Significance criteria would be the same as those presented under the Maximum Marine/Maximum Rail Alternative.

5.4.10.2 Significant Impacts

Impact 1: Transportation-related Air Pollutant Emissions. The Reduced Harbor Fill Alternative would result in increased auto, truck, rail, and ship activity at the Port. Emission increases would be slightly greater than for the Maximum Marine/Maximum Rail Alternative. As shown in Tables 5-9 and 5-10 in Section 5.1.10, the Reduced Harbor Fill Alternative would result in a net increase of 55 tons per year of reactive organic compound emissions, 796 tons per year of

nitrogen oxide emissions, 237 tons per year of carbon monoxide emissions, 193 tons per year of sulfur oxide emissions, and 119 tons per year of PM_{10} emissions. The Reduced Harbor Fill Alternative would increase regionwide emissions from transportation sources by about one percent for nitrogen oxides, 1.4 percent for sulfur oxides, and about 0.1 percent for other pollutants. These net emission increases exceed the BAAQMD impact significance criteria of 15 tons per year for ozone and PM_{10} precursors, and thus represent a significant unmitigable air quality impact.

Mitigation 1. As discussed under the Maximum Marine/Maximum Rail Alternative, no feasible mitigation measures have been identified for this impact.

Impact 2: Construction and Demolition. The Reduced Harbor Fill Alternative would have slightly less total construction and demolition activity than the Maximum Marine/Maximum Rail Alternative. The required construction activity probably would occur over a time similar to that required for the Maximum Marine/Maximum Rail Alternative. Consequently, air quality impacts from construction and demolition activities generally would be similar to those discussed for the Maximum Marine/Maximum Rail Alternative.

Mitigation 2. The mitigation measures for construction dust are the same as for the Maximum Marine/Maximum Rail Alternative. Implementing Mitigation 2 identified for the Maximum Marine/Maximum Rail Alternative would reduce this impact to a not significant level.

5.4.10.3 Not Significant Impacts

Carbon Monoxide Concentrations from Area Traffic. Potential carbon monoxide concentrations generated by afternoon peak hour traffic conditions have been modeled using the CALINE4 dispersion model (Benson 1989). Modeling results for all project alternatives are summarized in Table 5-11 in Section 5.1.10. Maximum predicted carbon monoxide concentrations for the Reduced Harbor Fill Alternative are 6.9 parts per million (ppm) as a 1-hour average and 5.5 ppm as an 8-hour average. California ambient air quality standards for carbon monoxide are 20 ppm for a 1-hour average and 9 ppm for an 8-hour average. The Reduced Harbor Fill Alternative would not cause or contribute to ambient carbon monoxide problems in the West Oakland area. Therefore, carbon monoxide concentrations from area traffic under the Reduced Harbor Fill Alternative would be a not significant impact, and no mitigation would be required.

Asbestos and Lead Particles from Demolition Activities. The potential for release of lead- or asbestos-contaminated materials would be similar to that discussed for the Maximum Marine/Maximum Rail Alternative. Compliance with existing federal, state, and BAAQMD regulations during building demolition or remodeling would prevent significant airborne releases of these materials. Consequently, this impact is considered to be not significant.

Land Use Compatibility Conflicts. The potential for land use compatibility conflicts due to odors or hazardous air pollutant emissions would be similar to that discussed for the Maximum Marine/Maximum Rail Alternative. This impact is considered to be not significant.

5.4.10.4 No Impacts

Federal Clean Air Act Conformity. As described under the Maximum Marine/Maximum Rail Alternative, the Vision 2000 Program would not likely be subject to Clean Air Act conformity determination requirements, and no impacts are expected.

5.4.11 Noise

The ROI would be the same as that presented under the Maximum Marine/Maximum Rail Alternative.

5.4.11.1 Significance Criteria

Significance criteria would be the same as those presented under the Maximum Marine/Maximum Rail Alternative.

5.4.11.2 Not Significant Impacts

Rail Traffic Noise North and East of West Oakland. Rail traffic between Oakland and the Central Valley under the Reduced Harbor Fill Alternative would be almost the same as that discussed for the Maximum Marine/Maximum Rail Alternative. Noise levels along the rail line would also be very similar to those under the Maximum Marine/Maximum Rail Alternative (see Table 5-12 in Section 5.1.11), resulting in noise impacts that are not significant.

Construction and Demolition. The Reduced Harbor Fill Alternative would have slightly less total construction and demolition activity than that for the Maximum Marine/Maximum Rail Alternative. The required construction activity probably would occur over a similar time to that required for the Maximum Marine/Maximum Rail Alternative. Nevertheless, the extent of construction activity during peak construction periods might be similar to that expected for the Maximum Marine/Maximum Rail Alternative.

Noise from construction activities would not be a significant disruption to on-site industrial activities. Construction of ship berths would be more than 3,000 feet from the nearest West Oakland residential neighborhoods. Construction activity associated with container storage and rail facilities would be at least 1,200 feet from the closest neighboring West Oakland residential areas, with much of the construction activity more than 1,500 feet from these residential neighborhoods. These distances are sufficient to avoid any significant noise impacts from construction activity.

Noise Generated by Vehicle Traffic. Port expansion associated with the Reduced Harbor Fill Alternative would generate an increased volume of auto and truck

traffic headed to or from the port. The added truck traffic, in particular, has the potential for increasing traffic noise levels in neighborhoods adjacent to area freeways and along major freeway access routes.

Because of high background traffic volumes and high existing truck traffic volumes, traffic added by the Reduced Harbor Fill Alternative would not have a significant effect on noise levels associated with freeway traffic. Noise levels along important freeway access routes (such as Maritime and 7th Street at I-880) will increase by 3 to 5 dBA. Because the affected land uses along these roadways generally are not noise-sensitive, this impact is not considered significant.

Noise Generated by Marine Terminal Operations. Ship loading and unloading operations would require a significant amount of on-site truck traffic, container handling, and crane operations. Because these operations would occur more than 3,000 feet from residential or other noise-sensitive land uses, no significant noise impacts are anticipated.

Noise Generated by Railyard Operations. Most of the rail car coupling activity associated with the Reduced Harbor Fill Alternative would occur at locations about 1,200 feet from the nearest residential neighborhoods. At this distance, peak noise levels in the residential areas would be about 69 dBA, with average noise levels of about 60 dBA during each rail car coupling event. Actual noise levels experienced at the nearest residential neighborhoods are expected to be 5 to 10 dBA lower than these values, due to shielding by stacked truck containers. The resulting noise levels would not be a significant impact.

Rail Traffic Noise South of West Oakland. Rail operations south of the Port area would be comparable to those discussed for the Maximum Marine/Maximum Rail Alternative. The minor reduction in rail operations noise through the Jack London Square area would represent a beneficial impact.

5.4.12 Utilities

The ROI would be the same as that presented under the Maximum Marine/Maximum Rail Alternative.

5.4.12.1 Significance Criteria

Significance criteria would be the same as those presented under the Maximum Marine/Maximum Rail Alternative.

5.4.12.2 Not Significant Impacts

Solid Waste. After buildout of the Reduced Harbor Fill Alternative, it is anticipated that regularly scheduled disposal of solid waste would continue to be handled through a private contractor. Solid waste generated from the Reduced Harbor Fill Alternative would be similar to that described under the Maximum Marine/Maximum Rail Alternative and would have no significant environmental impacts.

Water Supply System. Direct marine and rail terminal employment at the project site under buildout of the Reduced Harbor Fill Alternative (estimated at 2,965 jobs) would be slightly more than one-half the level of total on-site employment when FISCO was fully operational. Decreased levels of water usage would positively affect regional water supplies. Potential upgrades to the water system, if needed, will have no significant environmental impact.

Sanitary Sewer System. Direct marine and rail terminal employment under buildout of the Reduced Harbor Fill Alternative would be slightly more than one-half the level of employment when FISCO was fully operational. Decreased levels of sanitary waste would result in more available capacity to the EBMUD system. Furthermore, project construction activities will be designed not to disrupt or interfere with sanitary sewer service to off-site users, such as NAS Alameda. Potential upgrades to the sanitary sewer system, if needed, will have no significant environmental impact.

Stormwater System. Similar to the Maximum Marine/Maximum Rail Alternative, the stormwater system is subject to ponding during periods of heavy rainfall coupled with high tides. Potential upgrades to this system would have no significant adverse environmental impacts.

Electrical, Natural Gas, and Telephone Systems. Similar to the Maximum Marine/Maximum Rail Alternative, potential upgrading of electrical, natural gas, and telephone systems to meet current local standards would have no significant environmental impacts. There is adequate capacity to serve potential future site users under this alternative.

5.4.13 Hazardous Materials and Waste

The ROI would be the same as that presented under the Maximum Marine/Maximum Rail Alternative.

5.4.13.1 Significance Criteria

Significance criteria would be the same as those presented under the Maximum Marine/Maximum Rail Alternative.

5.4.13.2 Significant Impacts

Impact 1. Polychlorinated Biphenyls. The discussion of potential significant and mitigable impacts resulting from exposure to PCBs is the same as that described under the Maximum Marine/Maximum Rail Alternative.

Mitigation 1. This mitigation would the same as that identified under the Maximum Marine/Maximum Rail Alternative. Implementing Mitigation 1 would reduce this impact to a level that is not significant.

Impact 2. Storage Tanks. The discussion of potential significant and mitigable impacts resulting from exposure to USTs and ASTs is the same as that described under the Maximum Marine/Maximum Rail Alternative.

Mitigation 2. This mitigation would the same as that identified under the Maximum Marine/Maximum Rail Alternative. Implementing Mitigation 2 would reduce this impact to a level that is not significant.

Impact 3. Oil/Water Separators and Waste Impoundments. The discussion of potential significant and mitigable impacts resulting from exposure to OWSs and waste impoundments is the same as that described under the Maximum Marine/Maximum Rail Alternative.

Mitigation 3. This mitigation would the same as that identified under the Maximum Marine/Maximum Rail Alternative. Implementing Mitigation 3 would reduce this impact to a level that is not significant.

Impact 4. Historic Land Use Activities. The discussion of potential significant and mitigable impacts resulting from historic land use activities at the project site is the same as that described under the Maximum Marine/Maximum Rail Alternative. This is considered a potentially significant and mitigable impact.

Mitigation 4. This mitigation would the same as that identified under the Maximum Marine/Maximum Rail Alternative. Implementing Mitigation 4 would reduce this impact to a level that is not significant.

5.4.13.3 Not Significant Impacts

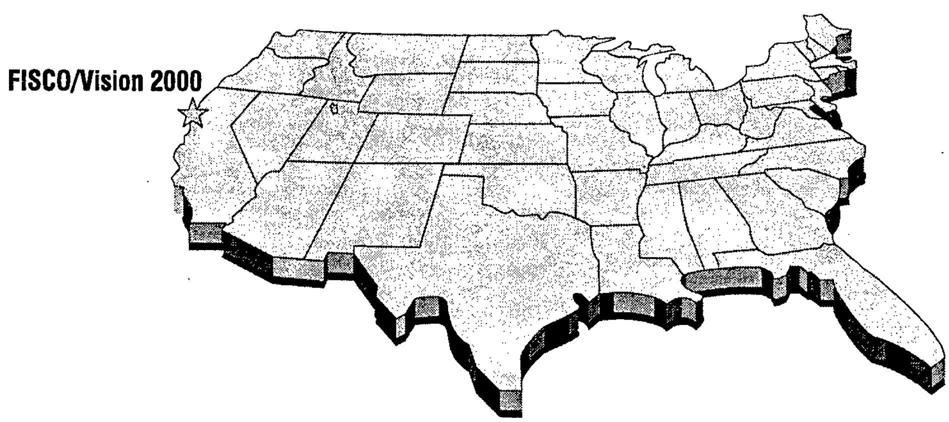
Hazardous Waste Generation. Impact determinations are expected to be similar to those identified for the Maximum Marine/Maximum Rail Alternative. The quantities of hazardous waste generated on-site would probably be somewhat lower than those expected under the Maximum Marine/Maximum Rail Alternative. No mitigation is required.

Hazardous Materials Use. Impact determinations are expected to be similar to those identified for the Maximum Marine/Maximum Rail Alternative. The quantities of hazardous materials used, stored, and handled on-site probably would be somewhat lower than those expected under the Maximum Marine/Maximum Rail Alternative due to the smaller project site. No mitigation is required.

Impact determinations are expected to be similar (i.e., not significant) to those identified for the Maximum Marine/Maximum Rail Alternative, and no mitigation is required for the following topics:

- Hazardous waste and materials management;
- Installation Restoration Program;
- Asbestos;

- Pesticides;
- Lead;
- Radon;
- Radioactive materials and wastes;
- Medical and biohazardous waste; and
- Ordnance.



6.0 OTHER CONSIDERATIONS REQUIRED BY NEPA/CEQA

CHAPTER 6
OTHER CONSIDERATIONS REQUIRED BY NEPA/CEQA

This chapter addresses topics required by NEPA/CEQA in EIS/EIR. These include, if applicable, an analysis of significant unavoidable adverse impacts to the environment (NEPA and CEQA), a discussion of the relationship between local short-term uses of the environment and long-term productivity (NEPA and CEQA), the identification of any irreversible and irretrievable commitment of resources (NEPA and CEQA), an analysis of growth-inducing impacts (CEQA), and an analysis of cumulative impacts (NEPA and CEQA). Issues related to environmental justice are presented in accordance with Executive Order 12898.

6.1 SIGNIFICANT UNAVOIDABLE ADVERSE EFFECTS

An EIS/EIR must describe any significant unavoidable adverse environmental impacts for which either no mitigation or only partial mitigation is feasible. For the identified mitigable significant impacts associated with Navy disposal of FISCO, feasible mitigations have been identified to reduce the impacts to a not significant level.

The one significant and unmitigable environmental impact associated with the reuse of FISCO was automobile, truck, rail, and ship traffic-related air pollutant emissions (specifically ROG, NOx, SOx, and PM_{10}) above the Bay Area Air Quality Management District significance threshold of 15 tons per year. This unmitigable environmental impact occurred under each reuse alternative, although the intensity of this significant impact was slightly different. All other potentially significant impacts of the proposed action would be mitigable to a not significant level by the implementation of mitigation measures recommended in this document.

6.2 SHORT-TERM USES AND LONG-TERM PRODUCTIVITY

NEPA and CEQA require that an EIS/EIR consider the relationship between short-term uses of the environment and the maintenance and enhancement of long-term productivity. The analysis covers the extent to which both disposal

and reuse involve tradeoffs between short-term environmental gains at the expense of long-term losses, or vice versa.

The environmental productivity of FISCO historically has been related to its operation as a naval supply depot and the maintenance of existing environmental conditions. Disposal and subsequent reuse of the property will result in both short- and long-term environmental gains. Short-term gains would be achieved through increased public access to open space and accompanying recreational opportunities along the Oakland Middle Harbor that were previously restricted due to Navy use. Enhancement of marine habitat in the Middle Harbor and preservation of one or more historic FISCO buildings represent additional short-term gains. Long-term benefits include providing jobs and opportunities for sustained recreational use. Maintaining public access and open space along the San Francisco Bay shoreline and protecting biological resources represent a proactive effort to increase long-term environmental productivity.

The environmental impacts associated with reuse of the proposed site would include the impacts to peak hour freeway traffic congestion, vehicular delay at railroad/highway crossings, increased air emissions due to increased traffic, and increased rail traffic noise. These impacts could be considered as decreases to the long-term productivity of the Bay Area region's vehicle and rail traffic flow and air quality.

The tradeoff for the potential environmental impacts that are not offset by environmental gains is the socioeconomic gain of maintaining the Port of Oakland and the San Francisco Bay Area as a major import and export center on the West Coast. Increased shipping activities at the Port would result in local and regional employment opportunities and growth in trade with Pacific Rim nations and across the United States.

6.3 IRREVERSIBLE /IRRETRIEVABLE COMMITMENT OF RESOURCES

NEPA and CEQA require that an EIS/EIR analyze the extent to which the proposed alternatives' primary and secondary effects would commit nonrenewable resources to uses that future generations probably would be unable to reverse. disposal of nonreversionary Navy property and structures increases options for site use and for responsible long-term resource management and makes no resource commitments.

Implementation of any of the Vision 2000 Program reuse alternatives would require commitments of both renewable and nonrenewable energy and material resources for demolition and commitments for construction of the structures and improvement of the infrastructure required for its implementation. These developments would represent a very large commitment of financial resources but would not represent an irreversible commitment of the Vision 2000 properties to the proposed uses.

6.4 GROWTH-INDUCING IMPACTS

An EIR must discuss the ways in which the proposed action and alternatives could foster economic or population growth or the construction of additional housing, either directly or indirectly, in the area surrounding the project. Analysis of growth-inducing effects includes those characteristics of the action that may encourage and facilitate activities that, either individually or cumulatively, would affect the environment. Population increases, for example, may impose new burdens on existing community service facilities. Similarly, improvement of access routes may encourage growth in previously undeveloped areas. Growth may be considered beneficial, adverse, or of no significance environmentally, depending on its actual impacts to the environmental resources present.

Three of the Port's goals for redevelopment of the FISCO site and surrounding property under the Vision 2000 Program are to provide for the growth of railroad intermodal capacity, to generate revenue to fund future growth and to ensure the viability of the Port, and to respond to continuing trends and requirements in maritime container shipping and overland transportation by constructing expanded intermodal rail facilities and marine terminals. In the last few years, the Port has suffered a loss of loading capacity and business to other West Coast ports with larger terminals and more efficient intermodal systems. Implementation of the Vision 2000 Program would return the Port to its previous competitive position with other West Coast ports.

Each of the Vision 2000 reuse alternatives analyzed would induce new economic growth in the region, and implementing any of these alternatives would create a substantial number of jobs. Any demands for additional employees resulting from reuse activities is expected to be met by the local population. The Port will continue to promote and implement local hiring. The increased economic activity is expected to contribute to regional economic growth and would affect factors such as housing conditions and land development. The results of any growth inducement resulting from the project would be controlled by existing and undetermined future zoning requirements, off-site general plan designations, and specific environmental documentation for separate development projects.

6.5 CUMULATIVE IMPACTS

An EIS/EIR must discuss cumulative impacts when they are significant, and when not significant, the document should explain the basis for that conclusion. Cumulative impacts are defined as two or more individual effects that, when considered together, are considerable or that compound or increase other environmental impacts. Individual effects may be changes resulting from a single project or a number of separate projects. Cumulative effects from several projects are the change in the environment that results from the incremental impact of the project when added to other closely related past, present, and reasonably foreseeable future projects. Cumulative effects can result from individually minor

but collectively significant projects occurring over the lifetime of the project under consideration.

Analysis of cumulative impacts must include regional effects in addition to potentially cumulatively significant localized effects. The region considered in this analysis is the East Bay. The selected Port reuse alternative would be implemented concurrently with other nearby military base closure and reuse activities, such as at Naval Air Station (NAS) Alameda. In addition, other major nonmilitary projects in the more immediate region of the project that could contribute to locally cumulative impacts are considered.

The methodology used to develop the cumulative analysis included discussing potential future projects with the City of Oakland, Port of Oakland, and City of Emeryville and compiling a list of ongoing and proposed specific projects near the project site that could reasonably contribute to cumulative impacts. A list of cumulative projects is presented in Table 6-1, and their location is shown on Figure 6-1.

Other projects considered for cumulative impacts analysis in the City of Oakland include:

- Arena Increased Seating Capacity Project - Oakland-Alameda County Coliseum Complex (Draft EIR released for public review on February 14, 1996);

- Dreyers Headquarters Expansion Project (Final EIR approved by the City of Oakland Planning Commission on February 7, 1996); and

- The Chabot Observatory and Science Center Project (Final EIR approved by the City of Oakland Planning Commission in 1995).

The Oakland-Alameda County Complex (located approximately 6.5 miles east of FISCO), Dreyers Headquarters (located approximately 4.5 miles northeast of FISCO), and the Chabot Observatory (located about 13 miles east of FISCO) were all determined to be too far away to have cumulative impacts when considered with FISCO disposal and Port reuse pursuant to the Vision 2000 Program and were therefore eliminated from further cumulative impacts analysis in this section. No other major development projects in the City of Oakland are proposed that would result in significant cumulative impacts in conjunction with the proposed Vision 2000 Program.

Projects considered for the cumulative impact analysis in the City of Emeryville include:

- Chiron Life Sciences Research Center (Final EIR completed in 1995);

Table 6-1
Foreseeable Projects

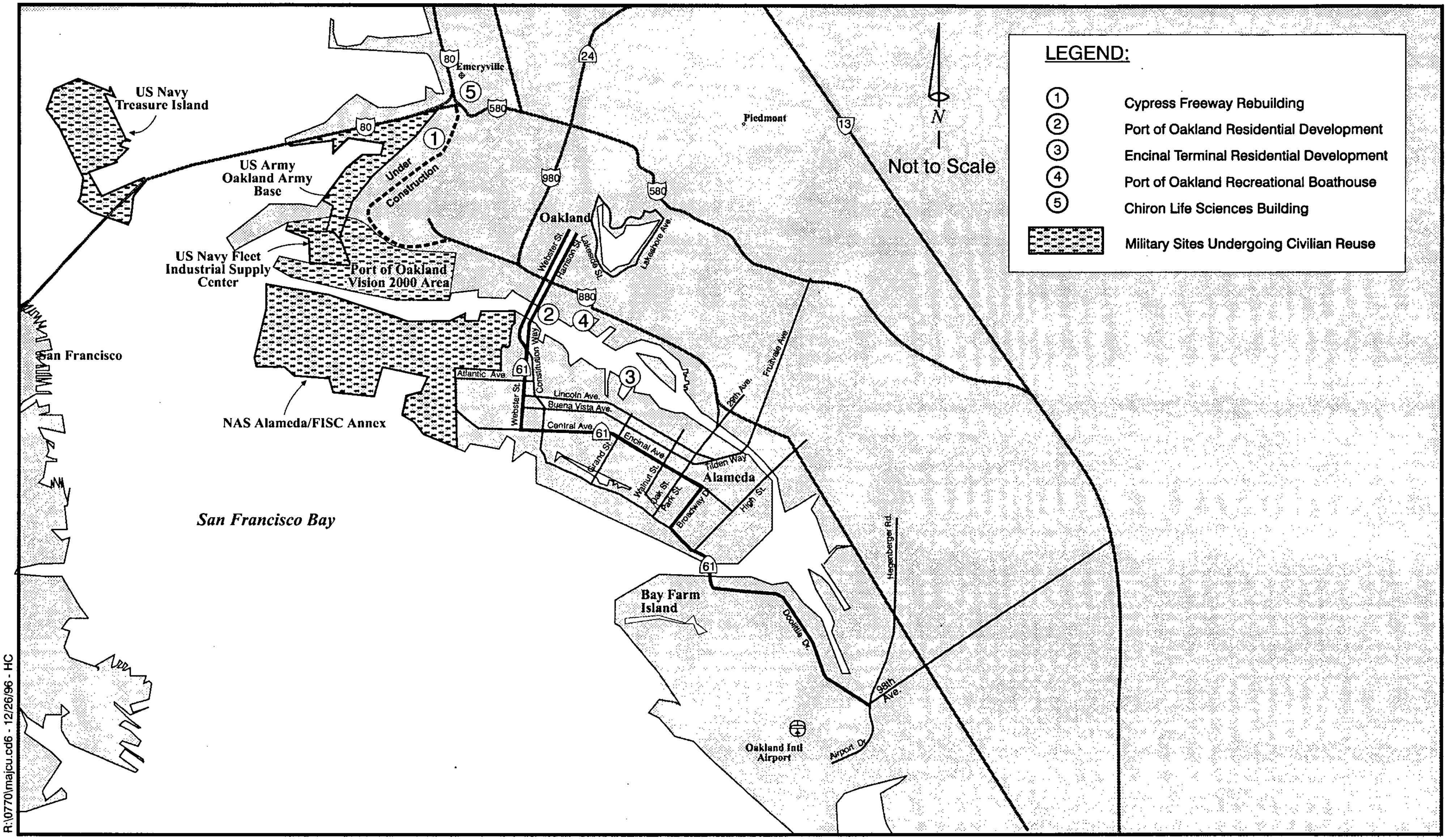
Project Name	Proximity to FISCO/ Vision 2000	Project Size	Historical Uses	Project Description	Completion Date of Planning Document	Projected Completion Date	Historical Population	Projected Future Population	Net Population Change
Buildout of Oakland Comprehensive Plan	Variable		Civilian urbanized	Infill and redevelop urbanized areas.	1992	2005	356,200 in 1990	370,900 in 2005	14,700
NAS Alameda/FISC Annex	0.25-1.5 miles	2,842 acres	Military	Reuse property for civilian residential and nonresidential purposes.	January 1996	2020	5,736	21,939 - 28,097	22,361-16,203
Port of Oakland -42 Foot Dredging Project	adjacent waters			Dredge Oakland Outer and Inner Harbor Channels from -38 feet to -42 feet MLLW.	1994	1997	0	0	0
Port of Oakland -50 Foot Dredging Project	adjacent waters			Dredge Oakland Outer and Inner Harbor Channels from -42 feet to -50 feet MLLW	not started	2001	0	0	0
Port of Oakland Site "B" Project	1/2 mile	9 acres	Vacant and parking lot	Develop 250-300 medium density residential units along Oakland Inner Harbor, southeast of Alice Street.	November 1996	December 1999	0	600-700	600-700
Port of Oakland Development Recreational Boathouse	2 miles	1 acre	Recreational area at Estuary Park	Construct boathouse along Oakland Inner Harbor for storage, maintenance, and operation of recreational watercraft for club and individual sports.	unknown	unknown	0	0	0
Port of Oakland - Buildout of Jack London Square Master Development Plan - Phase I	1/2 mile	< 1 acre (Hotel site)	KTVU -2 television station, Gallagher's restaurant	Occupancy of vacant retail space along Water Street and ground floor of Washington Street Parking Garage along Embarcadero. Development of mid-rise hotel (up to 200 rooms) adjacent to 530 Water Street and office and restaurant or retail development at southwest corner of Broadway/Embarcadero.	1998	unknown	0	0	0

Table 6-1
Foreseeable Projects *(continued)*

Project Name	Proximity to FISCO/ Vision 2000	Project Size	Historical Uses	Project Description	Completion Date of Planning Document	Projected Completion Date	Historical Population	Projected Future Population	Net Population Change
Port of Oakland - Jack London Square Marina	1/2 mile		Marina and public access	Moderate dredging and berth reconstruction, public access walkway/promenade between Jack London Village and Webster Street pier and new Harbor Master's office.	January 1994	1999	0	0	0
Port of Oakland Berth 22 Extension Project	Marine terminal area in Outer Harbor proposed under Min. Marine/ Min. Rail Alternative	26 acres	Port berth	Fill 26 acres to extend Berth 22.	uncertain	2002-2007	0	0	0
Oakland Army Base	adjacent property	422 acres	Military	Currently unknown civilian reuse of base.	uncertain	uncertain	uncertain	uncertain	uncertain
Treasure Island/ Yerba Buena Island	3.5 miles	558.7 acres	Military	Currently unknown civilian reuse of island.	1996-1997	estimated 2010-2020		unknown	unknown
Redevelopment of Alameda Encinal Terminal		Approximately 35 acres	Civilian marine terminal	Redevelopment from unused wharf and warehouses to 200 units of residential.	Not yet started	2000	0	estimated at 400-450	400-450
Buildout of Alameda General Plan	0.25 - 7 miles	Mostly small developments less than 100 acres	Civilian-urbanized	Development and infill of existing parcels and some redevelopment of existing urbanized area.	1991	2010	74,139 in 1990	81,400 in 2010	7,261
Caltrans Cypress Freeway Rebuilding	Adjacent property to 4 miles	Eight-lane freeway for approx. 2 miles	Freeway	Replace freeway destroyed by earthquake. New eight lane freeway.	1991	1997	0	0	0

Table 6-1
Foreseeable Projects *(continued)*

Project Name	Proximity to FISCO/ Vision 2000	Project Size	Historical Uses	Project Description	Completion Date of Planning Document	Projected Completion Date	Historical Population	Projected Future Population	Net Population Change
Chiron Life Sciences Research Center	2.4 miles	24 acres	Warehouse/ retail	2,200,000 square feet for corporate headquarters and biotechnology research.	1995	2005	0	0	0
South Bay Front	2 miles	25 acres (5 acres in Port of Oakland jurisdiction)	Warehouse/ retail	750,000 to 1 million square feet of commercial, retail, and entertainment. Possible office, hotel, and 100 to 250 housing units	end of 1997	unknown	0	Estimated at 200 to 300	200-300
Pixar Corporation Headquarters	2.3 miles	15 acres	Warehouse/ retail	500,000 square-foot office development. for corporate headquarters.	1997	construction begins in fall of 1997	0	0	0



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The area around FISCO will experience several large-scale redevelopment projects.

Source: Port of Oakland 1996

Cumulative Project Locations Near FISCO and the Port of Oakland

Fleet & Industrial Supply Center Oakland
and Port of Oakland

Figure 6-1

Port of Oakland

- South Bay Front (EIR to be completed in late 1997); and

- Pixar Corporation Headquarters (EIR to be completed before fall of 1997).

The three projects are all located within approximately two to two and one-half miles northeast of the project site. These projects are described in more detail in Table 6-1.

Additional sources were used to identify reasonably foreseeable projects because the general plans for the area do not include some of the most recent land use proposals nor proposals for surrounding jurisdictions. The projects listed in Table 6-1 were considered with the disposal and reuse of the project site to prepare the following cumulative analysis. Table 6-2 summarizes growth inducing and cumulative impacts and their significance.

Table 6-2
Summary and Significance of Growth Inducing and Cumulative Impacts and Environmental Justice

	Navy Actions		Vision 2000 Reuse Alternatives			
Impact Issues	**No Action Alternative**	**Navy Disposal**	**Maximum Marine/ Maximum Rail Alternative**	**Minimum Marine/ Minimum Rail Alternative**	**Maximum Marine/ Minimum Rail Alternative**	**Reduced Harbor Fill Alternative**
Growth-inducing	⦶	○	⦶	⦶	⦶	⦶
Cumulative land use	○	○	○	○	○	○
Cumulative socioeconomics	⦶	○	⦶	⦶	⦶	⦶
Cumulative public services	⦶	○	⦶	⦶	⦶	⦶
Cumulative cultural resources	◑	○	◑	◑	◑	◑
Cumulative visual resources	⦶	○	⦶	⦶	⦶	⦶
Cumulative biological resources	⦶	○	⦶	⦶	⦶	⦶
Cumulative water resources	◑	○	◑	◑	◑	◑
Cumulative geology and soils	⦶	○	⦶	⦶	⦶	⦶
Cumulative traffic and circulation	●	○	●	●	●	●
Cumulative air quality	●	○	●	●	●	●
Cumulative noise	●	○	●	●	●	●
Cumulative utilities	◑	○	◑	◑	◑	◑
Cumulative hazardous materials and waste	○	○	◑*	◑*	◑*	◑*
Environmental justice	○	○	○	○	○	○

LEGEND:

Level of Impact

● = Significant and not mitigable
◑ = Significant and mitigable
⦶ = Not significant
○ = None
* = Potential significant cumulative impact

Land Use
Implementation of the Vision 2000 Program in conjunction with other military reuse proposals in the region and other cumulative development would cumulatively increase open space available to the public. Cumulative disposal and reuse of military facilities would reduce the amount of land off limits to the general public and would increase property available for public access. This is considered a cumulative beneficial land use effect.

Socioeconomics
The reuse of FISCO and surrounding non-Navy property in combination with other reuse projects planned in the vicinity (e.g., Oakland Army Base, NAS Alameda), and with respect to other development projects planned by the Port, would generate substantial additional long-term direct and indirect employment, with corresponding increases in income. Cumulative employment and income growth at the Port also would occur in the long term as existing and proposed terminal facilities are used more efficiently. This would result in new employment opportunities, especially for truckers, warehouse workers, freight forwarders, and persons in similar occupations that provide support to the maritime transportation industry. This increased cumulative economic activity would be expected to affect regional housing and population conditions. However, given the availability of labor in the Bay Area, as well as government controls on the location and timing of new development, the project's cumulative affects on population and housing would not be anticipated to be significant.

Public Services
Reuse, along with other planned public and private development in the City of Oakland, would add to cumulative service demands on Oakland's police and fire departments, as well as emergency medical services in the project area. These impacts would be offset by fair-share funding received from development agreements with project developers. This is not anticipated to be a significant cumulative impact.

Cultural Resources
Reuse of FISCO, along with reuse of the Oakland Army Base, NAS Alameda/FISC Annex, and other cumulative development in the surrounding region, could result in cumulative impacts to cultural resources through demolition of historic buildings and structures, such as in the Oakland Army Base Historic District and the NAS Alameda Historic District. Physical disturbances, such as demolition and adaptation of cultural resources in the area, would result in an irreversible loss of finite resources. Historic buildings and structures are subject to demolition or removal due to large- and small-scale development projects.

Loss of historic resources through demolition and reuse on FISCO, other military bases proposed for disposal and reuse, and nonmilitary development

projects could result in a cumulatively significant impact. Mitigation for this cumulative significant impact could include Memoranda of Agreement (MOAs) with the State Historic Preservation Officer (SHPO) and Advisory Council on Historic Preservation (ACHP) for restoring, preserving, and recording the affected resources.

Visual Resources

A slight increased cumulative effect on visual resources is expected from the combination of the FISCO/Vision 2000 project and reuse of NAS Alameda/FISC Annex because these two projects are visible at the same time from a single viewpoint, such as from boats and ferries traveling along the Oakland Inner Harbor. Development of potential new uses along the northern shore of Alameda Island, such as maritime-related light industry, residential, and office, could, in combination with the Port's Vision 2000 Program, could create cumulatively strong visual contrasts from San Francisco Bay and ferry service within the Oakland Inner Harbor or disrupt views. However, this is considered a not significant cumulative impact, given the developed and industrial context of land uses in the general vicinity of the FISCO/Vision 2000 project area.

Biological Resources

The ROI for the project includes the proposed USFWS wildlife refuge for California least terns, Alameda NAS, and other parts of northwestern Alameda Island. The disposal and reuse of NAS Alameda, 0.25 to 1.5 miles from the project site, will involve implementing one of four reuse alternatives. These changes are likely to contribute most to cumulative impacts because of their proximity to the site. The reuse alternatives include the following options for development of northwest Alameda Island in a strip between the Oakland Inner Harbor Channel and the least tern refuge: light industry, recreation fields, open space areas, a golf course, seaport industries, and residential.

California brown pelicans and winter-run Chinook salmon are occasional visitors to the ROI and have access to higher quality habitat nearby. These two species are not expected to be affected by cumulative changes in area activity. American peregrine falcons visit the area, but this urban-adapted species would not be affected by further development of land around the project site.

Cumulative increased human activity and development in the ROI are not expected to have a cumulative significant impact on the adjoining California least tern colony at NAS Alameda. The proposed wildlife refuge will provide sufficient protection to nesting California least terns. Because the proposed refuge is adjacent to primary foraging areas in San Francisco Bay, new human activities and development on the FISCO site will not restrict access to the primary foraging areas.

The USFWS has determined that previous dredging activities in the Oakland Inner Harbor, including the 42-foot dredging project, have not posed a threat to least tern foraging activity. Therefore, even under the assumption that dredging the Inner Harbor channel to a depth of 50 feet below mean lower low water (MLLW) and filling of the Middle Harbor area will take place simultaneously, the cumulative impact of these two activities on least tern foraging in the Inner Harbor would not be expected to be significant. Furthermore, the limited least tern foraging activity in the Oakland Inner Harbor appears to be concentrated in three areas. Cumulative dredging and construction activities in the Inner and Middle Harbors are not likely to affect these locations due to the distance of these foraging areas from the proposed construction areas and the use of best management practices to minimize turbidity.

Water Resources

The No Action Alternative could result in increased contaminants in stormwater runoff from FISCO. This, in turn, could contribute to cumulative loadings of stormwater contaminants in Central Bay receiving waters. This is a cumulative significant and mitigable impact.

Developing the selected Port reuse alternative, in combination with other local proposed or reasonably foreseeable development, could also add to significant cumulative effects to the quality of local receiving waters. One major project proposed for the area is the Port of Oakland's proposed deepening of the Oakland Inner Harbor from the current depth of 42 feet below MLLW to a depth of -50 feet MLLW. This project has the potential to adversely affect bay water quality due to the potential increase in turbidity and resuspension of sediment contaminants during the dredging project. Depending on the timing and location of the dredging, this could combine cumulatively with any dredging effects from the selected reuse alternative.

In addition, disposal and reuse of NAS Alameda/FISC Annex across the Oakland Inner Harbor in Alameda, in combination with the selected Port reuse alternative, would cumulatively contribute to the discharge of stormwater contaminates and potential spills of contaminates that could adversely affect water quality in the Oakland Inner Harbor and the bay in general. Project-specific mitigation implementing the Port's and City of Alameda's stormwater management program could reduce this impact below the level of significance.

Geology and Soils

Regionally, the reuse of the FISCO/Vision 2000 project site in combination with cumulative development would add to the number of people and structures subject to regional seismic hazards but would not change the likelihood or severity of any potential earthquake. Therefore, this is considered a not significant cumulative impact.

Traffic and Circulation

Development of the selected Port reuse alternative, in combination with other local proposed or reasonably foreseeable development, could increase traffic and circulation impacts. There would be an increase in ships calling at the Port, resulting in increased loading and unloading activity levels while ships are in berth. In addition, truck traffic both at the Port marine and rail terminals would likely increase due to an increase in market demand.

The 2010 cumulative traffic effects of many potential development projects were considered in the analysis of Port Vision 2000 project impacts described in Chapter 5. This traffic and circulation impacts analysis was based on the Alameda County CMA transportation model, which included land use forecasts developed by the Association of Bay Area Governments (ABAG) for 2010. Many of the projects listed in Table 6-1 are included in the ABAG forecasts.

Additional transportation effects could result from development plans that exceed the ABAG projections and that have not been included in the CMA transportation model. Military base reuse projects in the Bay Area currently being planned likely would exceed the ABAG land use forecasts for 2010. The potential traffic impacts caused by these projects, in combination with the selected Port reuse alternative, would include impacts to Bay Area freeways and intersections and would add traffic to the freeways, thereby exacerbating the impacts of the Port's Vision 2000 project.

Growth in traffic on Bay Area highways will occur over time whether or not the Port Vision 2000 project is implemented. To the extent that the CMA 2010 transportation model reflects the lower bound of transportation impacts due to cumulative growth, it is apparent that cumulative growth in the project area without the Port Vision 2000 project would result in significant and unavoidable impacts to the region's freeway system. The analysis shown in Chapter 5 (Table 5-8) shows that several freeway segments would fail to comply with CMA level of service standards without development of the Port Vision 2000 project. Cumulative growth would result in noncompliance on I-80, I-880, I-238, and I-580.

It is not practical to mitigate cumulative traffic impacts to freeways to levels that are not significant. Increasing freeway capacity by adding lanes would not be feasible because of the high cost, the negative impacts to air quality, and other factors. Adding lanes is inconsistent with the policies of the responsible regional agencies. Other possible mitigation measures might include implementing ramp metering, high occupancy vehicle lanes, or intelligent transportation systems to improve the efficiency of the freeways. There are studies underway to determine which systems might show the most promise for relieving freeway congestion in the Bay Area, although none are expected to mitigate freeway impacts to not significant levels.

The disposal and reuse of the Oakland Army Base could result in cumulative impacts on local roadways such as Maritime Street, 7th Street, and the I-880 interchange ramps. The plans for redevelopment of the Oakland Army Base are not well enough defined to develop an accurate assessment of the types of impacts likely to occur or to define mitigation measures required to comply with City of Oakland service standards.

Additional refinement of the roadway design elements may be required to mitigate cumulative traffic impacts. Subsequent project-level EIRs for the Port's Vision 2000 Program will need to consider roadway design modifications required to mitigate cumulative impacts, particularly the impacts from reuse of the Oakland Army Base.

Air Quality

Implementation of the proposed project and other major development in the region would contribute to cumulative air pollutant emissions in the Bay Area. Cumulative air quality issues in the San Francisco Bay Area are being addressed through regional air quality plans developed jointly by BAAQMD, ABAG, and MTC. These plans reflect anticipated regional land use and transportation patterns. BAAQMD regulations require most new industrial facilities to fully offset emissions that will be generated by their operations. Current plans are subject to periodic review and revision.

The 2010 cumulative air quality effects of many potential development projects were considered in the carbon monoxide dispersion modeling and traffic-related ozone precursor emissions analysis presented in Chapter 5. The Chapter 5 air quality impacts analysis was based on the Alameda County CMA transportation model, which included land use forecasts developed by ABAG for 2010. Additional air quality impacts could result from development plans that exceed ABAG projections, and these impacts have not been included in the CMA transportation model. The potential growth in Bay Area traffic, beyond that predicted in the CMA model, could exacerbate the impact of the Port's Vision 2000 project on traffic-related air emissions. As described in Chapter 5, no feasible mitigation measures have been identified for this impact. Emission calculations already assume a 15 percent trip reduction rate for employee home work trips and a ten percent trip reduction rate for work other trips.

Noise

The rail traffic noise analysis presented in Chapter 5 did not take into account the addition of Amtrak trains caused by regional growth; these trains would cumulatively add to rail traffic on the Southern Pacific rail line into the Central Valley, thereby potentially causing noise levels to exceed significance thresholds. This would be considered a significant and unmitigable cumulative noise impact.

Although it is technically possible to construct noise barriers that will significantly reduce rail noise impacts on adjacent land uses, it is seldom

economically feasible to do so. In general, extensive shielding of rail noise requires expensive noise barriers that are higher than most people find acceptable. Barrier heights of 15 feet or more are often required to achieve 8-10 dB noise reductions. Cost, aesthetic, and other considerations often make such noise barriers infeasible or undesirable. Lower barriers will provide small amounts of noise shielding but only for properties adjacent to the barrier.

Utilities

Roughly the same number of buildings and structures would be demolished for each Vision 2000 reuse alternative. In addition, the Port is authorized to demolish buildings under the No Action Alternative. The Port is exploring recycling/reuse of construction and building debris on-site. However, cumulative demands on solid waste disposal/landfill capacity (including reuse) could be significant and mitigable if reducing waste at its sources and recycling goals are not met on a regional basis.

There is a current countywide landfill capacity shortfall of about eight million tons to meet projected needs through 2010 (Alameda County Waste Management Authority 1995). Over the long term, in combination with other activities, that generate substantial quantities of solid waste that will need to be diverted or landfilled, the generation of demolition waste at the FISCO/Vision 2000 project site could be a potentially significant cumulative impact.

If Alameda County is unable to meet the Cal/EPA solid waste reduction standards of 50 percent by 2000, the Solid Waste Reduction Act provides for penalties of $10,000 a day. Even if Alameda County can avoid paying the penalty through waivers or other remedies available from the state, significant economic impacts would result from higher costs of waste disposal and shortened landfill life.

In anticipation of this large quantity of construction and demolition materials, the California Integrated Waste Management Board (CIWMB) has been exploring ways to assist localities in diverting these wastes from landfills through reuse, recycling, and other strategies. An informal CIWMB base closure team has been organized with staff and others to examine the issues and to identify means to assist counties involved in base reuse.

The CIWMB asked the Trade and Commerce Agency for funds to do several projects. The following are those proposed activities applicable to the demolition issue: Researching and producing guidebooks on suggested demolition practices to be used to minimize contamination and to maximize reuse;

- Developing a local materials exchange program adapted to base reuse;
- Identifying reuse opportunities, processors, and markets for recovered materials;

- Developing local ordinances that require construction and demolition efforts to follow recovery and recycling guidelines; and

- Developing guidelines for handling potentially hazardous materials included in construction and demolition debris.

Taking the lead in addressing recycling associated with military base closures, the Secondary Materials and Technology Branch has been conferring with the Trade and Commerce Agency about the need for funding to support the CIWMB's base closure program. The CIWMB has requested funds from the Trade and Commerce Agency to implement technical assistance activities directed toward communities impacted by base closures. The CIWMB has no direct funding for diversion efforts by affected jurisdictions.

Hazardous Materials and Waste

The cleanup of hazardous materials and waste between closure of FISCO and buildout of the Vision 2000 Program and cumulative base conversion and reuse projects through the Bay region would have a beneficial impact on the regional environment. All known contaminated areas on bases proposed for disposal—Oakland Army Base and NAS Alameda/FISC Annex, and Treasure Island/Yerba Buena Island—would be remediated by the Navy or Army, at least to the level necessary to protect human health and the environment. Additionally, as remediation technology continues to advance, the success of cleanup efforts will increase. However, as described in Chapter 5, Port reuse on nonmilitary property, in combination with other development projects, could result in a potentially significant cumulative impact to human health and the environment, given the unknown nature and extent of hazardous materials and waste historically used in the vicinity of the project area. Mitigation for this significant cumulative impact would include historic site assessments and subsurface investigations, as necessary, to be undertaken on a project-by-project basis.

6.6 ENVIRONMENTAL JUSTICE

This section summarizes potential impacts from disposal and reuse of the project site on issues of environmental justice. As discussed in Section 3.2, the "Executive

Order on Federal Actions to Address Environmental Justice in Minority and Low-income Populations," issued on February 11, 1994, requires that the relative impacts of federal actions on minority and low-income populations be addressed to avoid the placement of a disproportionate share of adverse impacts of these action on these groups. On April 21, 1995, the Secretary of Defense submitted a formal environmental justice strategy and implementation plan to the US EPA.

In order to comply with the executive order, this EIS/EIR included the following actions:

- Gathering economic, racial, and demographic information generated from the 1990 census to identify areas of low-income and high minority populations in the West Oakland community potentially exposed to project impacts;
- Assessing the disposal and reuse actions for disproportionate impacts resulting from on-site activities associated with reuse of project site facilities; and
- Encouraging community participation and input through public hearings and meetings and extensive public notification, as described in Chapter 1 of this document.

6.6.1 Analysis Methodology

6.6.1.1 Establishing the Region of Influence

Environmental justice impacts are examined only for the West Oakland community because this area would have the greatest exposure to any direct environmental impacts that result from implementation of any of the Vision 2000 reuse alternatives. Minority and low-income populations outside the West Oakland community would not be directly affected by reuse issues. Detailed impact analysis therefore focuses on the sixteen census tracts (4014 through 4027) that lie within West Oakland, which is located south of Highway 80, west of Highway 980, north of the Oakland Estuary, and east of San Francisco Bay in the City of Oakland.

6.6.1.2 Identification of Environmental Justice Reuse Impacts

Issues related to environmental justice are addressed in detail in Sections 3.2 and in Appendix F (Socioeconomics) of this document. The following discussion summarizes this analysis.

The Executive Order on Federal Actions to Address Environmental Justice in Minority and Low-Income Populations requires that "Each Federal agency shall analyze the environmental effects, including human health, economic and social effects, of Federal actions including effects on minority communities and low-income communities, when such analysis is required by NEPA. Mitigation measures outlined or analyzed in an environmental assessment, environmental impact statement, or record of decision, whenever feasible, should address significant and adverse environmental effects of proposed Federal actions on minority communities and low-income communities."

All four Port of Oakland Vision 2000 reuse alternatives would have a significant and unmitigable environmental impact on air quality because they would result in air emissions which exceed the Bay Area Air Quality Management District significance thresholds. The EIS/EIR identified no mitigation which would reduce these air emissions below the significance threshold. All other significant environmental impacts of the Navy No Action Alternative, Navy property disposal, and the Port

of Oakland Vision 2000 reuse alternatives could be mitigated to a less than significant level except for cumulative impacts. Minority populations and low income populations would not be significantly and adversely or disproportionately affected by any environmental impact identified in this EIS/EIR for the reasons described below.

Increases in air pollutant emissions and noise tend to be either localized, in that they would occur at the project site, some 2,000 to 3,000 feet from residential areas, or regional and would not disproportionally affect West Oakland's residential areas. Increased rail usage would result in more rail noise, but these impacts would be distributed along rail lines throughout the region and Northern California, and would not disproportionately affect West Oakland residents. Truck traffic associated with all alternatives would be routed away from West Oakland's residential areas with completion of the I-880 Cypress Freeway. Traffic associated with the Port's maritime activities would be small and not significant compared to conditions in 2010 without the project but would contribute to cumulative increased traffic congestion at major freeway intersections throughout the Bay Area rather than within the West Oakland community.

6.6.1.3 West Oakland Minority and Low-income Characteristics

The racial composition of West Oakland is distinctly different from that of the City of Oakland as a whole, as well as that of the region. Based on 1990 census data, 0.3 percent of West Oakland's population are Caucasian, 75.6 percent are African Americans, 9.1 percent are Asians and Pacific Islanders, 0.5 percent are Native American, 8.8 percent are persons of Hispanic origin, and the remaining 5.7 percent comprises other groups. Around three-quarters of West Oakland's population is African American, compared with 44 percent citywide and nine percent in the region.

Income statistics for West Oakland reveal its residents have much lower incomes, relative to the rest of the City of Oakland, Alameda County, and the region. The mean household income more than doubled between 1980 and 1990, but it remained more than 40 percent below the citywide mean household income and less than half the countywide mean. Per capita income rose 90 percent between 1980 and 1990, from $4,083 to $7,763. This was roughly half the citywide per capita income and one-third the countywide per capita income. In West Oakland, as in the City of Oakland as a whole, both the number and percentage of persons living in poverty increased between 1980 and 1990, but West Oakland's percentage increased more markedly, from 33.1 percent in 1980 to 36.4 percent in 1990. This is almost double the citywide percentage of persons living below poverty, and it is more than four times the 8.5 percent found regionwide.

According to the socioeconomic impacts analysis in this document (Chapter 5), the long-term overall economic effects of any of the four reuse alternatives would be economically positive to the local community, including minority and low-

income groups, as well as the city and region as a whole. Therefore, these groups would not be adversely affected on a regional, citywide, or local basis.

6.7 EFFECTS FOUND NOT TO BE SIGNIFICANT

Environmental effects, also referred to as environmental impacts, have been identified as either significant or not significant. Impacts identified as significant exceeded some or all threshold values expressed in this report as "Significance Criteria." Effects (impacts) found not to be significant did not exceed thresholds stated as "Significance Criteria."

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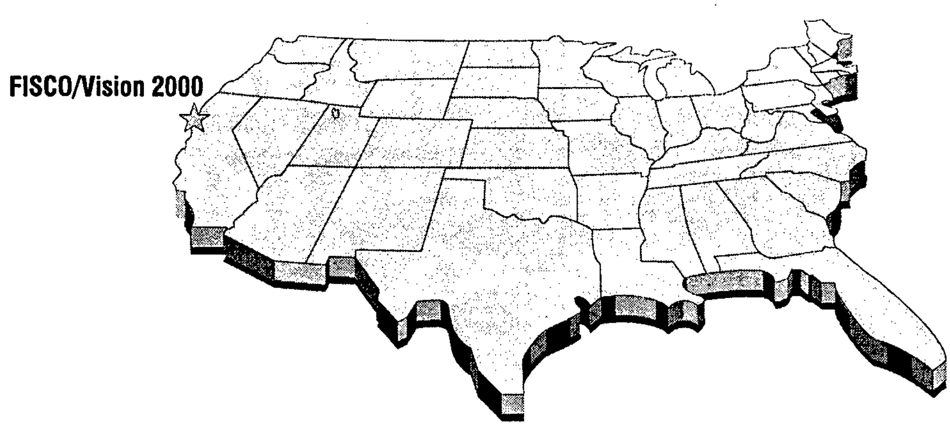

7.0 CONSULTATION AND COORDINATION

CHAPTER 7
CONSULTATION AND COORDINATION

7.1 AGENCY AND REPRESENTATIVES CONTACTED

The federal, state, and local agencies, and private organizations that were contacted during the course of preparing this EIS/EIR are listed below.

Port of Oakland
David Adams
Jon Amdur
Robert Andrews
Douglas Herman
Dean Luckhart
Ted Mankowski
James Putz
Terry O'Rourke
Jerry Serventi
Gail Staba
Anne Whittington
Jody Zaitlin

US Navy
Engineering Field Activity West
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Gary Munekawa
Doug Pomeroy
Sherm Seelenger
William Van Peeters

Fleet and Industrial Supply Center
Ed Guldner
Dick Hegarty
Peter Wong

Oakland Army Base
Tom Galvin

Oakland Base Reuse Authority
Mel Blair

US Fish & Wildlife Service
James Browning

US National Marine Fisheries Service
James Bybee

California Department of Fish & Game
Diana Watters

California Academy of Science
Doug Bell

Metropolitan Transportation Commission
David Tannehill

East Bay Municipal Utility District
Tom Harvey

Public Works Center, San Francisco Bay
John Parsons

Alameda County
Diane Akers

City of Berkeley
Susan Sanderson

City of Emeryville
Claudia Cappio

City of Oakland
Aletha Cannon
Noel Ibalio
Katrina Koh
Randy Mach
Helene Prentiss
Anu Raud

City of Oakland Fire Department
John Speakman

City of Oakland Police Department
Michael Beale
Lynn Belman
Phyllis Bruning

Ronald Payne
Michael Sims

City of Richmond
Gary Martin

City of San Francisco
Ed Champlin

7.2 SCOPING

The project mailing list, including agencies, organizations, and individuals that received scoping letters, is provided in Appendix D. The following parties responded to the scoping request:

Federal Agencies
US Environmental Protection Agency, Region 9
US Army Corps of Engineers

State Agencies
State of California Department of Fish and Game
State of California Department of Transportation

Local/Regional Agencies
City of Alameda
Alameda County Congestion Management Agency
Alameda Reuse Redevelopment Authority
Historical Resources Information System
Metropolitan Transportation Commission
San Francisco Bay Conservation and Development Commission
San Francisco Bay Trail, Association of Bay Area Governments

Organizations
Secondary Materials Industries Working Group
League of Women Voters of the Bay Area
Golden Gate Audubon Society
Oakland Heritage Alliance
Coalition for West Oakland Revitalization

Individuals
Judith Bloom
George Burtt
William Chorneau
Andrea Dawson
John Geddie
Margaret Gordon
Harold Logwood
Nancy Nadel
Ellen Parkinson
Roger Schmidt

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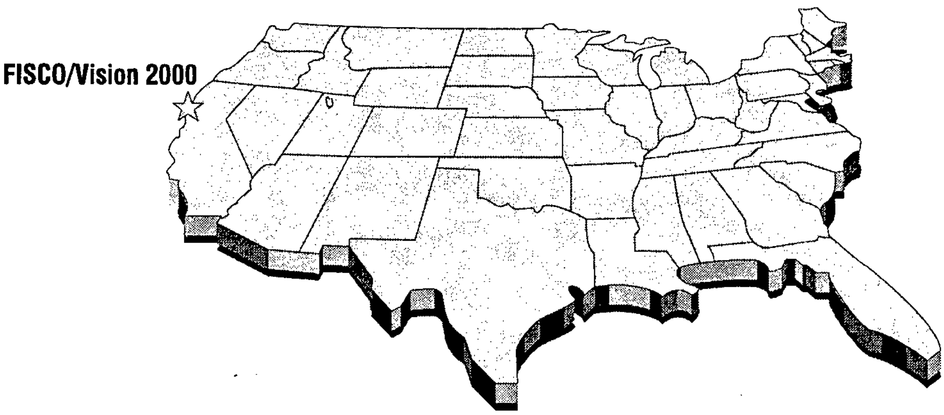

8.0 REFERENCES

CHAPTER 8
REFERENCES

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8.2 Personal Communications

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Akers, Diane. Alameda County OEMs District, June 7, 1996, personal communication with Ed Bondoc, Tetra Tech, Inc.

Amdur, Jon, Port of Oakland, June 13, 1996, personal communication with Rosalyn Johnson, Tetra Tech, Inc.

Amdur, Jon, Port of Oakland, July 25, 1996, personal communication with Rosalyn Johnson, Tetra Tech, Inc. via comments on the 60% draft.

Andrews, Robert, Port of Oakland, March 24, 1996, personal communication with Terry Witherspoon, Tetra Tech, Inc.

Andrews, Robert, Port of Oakland, May 13, 15, and 22, 1996, personal communication with Richard Grassetti, Grassetti Environmental Consulting.

Andrews, Robert, Port of Oakland, June 11, 1996, personal communication with Stephen Burger, Tetra Tech, Inc.

Andrews, Robert, Port of Oakland, July 10, 1996, personal communication with Nolan Rhem, Tetra Tech, Inc.

Andrews, Robert, Port of Oakland, October 23, 1996, personal communication with Tetra Tech, Inc.

Beale, Michael, City of Oakland Police Department, June 19, 1996, personal communication with Ed Bondoc, Tetra Tech, Inc.

Bell, Doug, California Academy of Science, June 14, 1996, personal communication with Rosalyn Johnson, Tetra Tech, Inc.

Beritzhoff, Michael, and James Putz, Port of Oakland, September 27, 1996, personal communication with Terry Witherspoon, Tetra Tech, Inc.

Belman, Lynn, City of Oakland Police Department, June 6, 1996, personal communication with Ed Bondoc, Tetra Tech, Inc.

Bonino, Mark, Port of Oakland, June 17, 1996, personal communication with Terry Witherspoon, Tetra Tech, Inc.

Bonino, Mark, US Navy Engineering Field Activity West, September 12, 1996, personal communication with Ed Bondoc, Tetra Tech, Inc.

Bonino, Mark, US Navy Engineering Field Activity West, November 4, 1996, personal communication with Ed Bondoc, Tetra Tech, Inc.

Bonino, Mark, US Navy Engineering Field Activity West, November 14, 1996, personal communication with Ed Bondoc, Tetra Tech, Inc.

Bonino, Mark, US Navy Engineering Field Activity West, December 13, 1996, personal communication with Tetra Tech, Inc.

Browning, Jim, US Fish and Wildlife Service, June 6, 1996, personal communication with Rosalyn Johnson, Tetra Tech, Inc.

Bruning, Phyllis, City of Oakland Police Department, June 27, 1996, personal communication with Ed Bondoc, Tetra Tech, Inc.

Bybee, James, US Fish and Wildlife Service, June 6, 1996, personal communication with Rosalyn Johnson, Tetra Tech, Inc.

Champlin, Ed, City of San Francisco Employment Development Department, June 19, 1996 personal communication with Mara Feeney, Mara Feeney & Associates.

Feeney, Leora, June 13, 1996, personal communication with Rosalyn Johnson, Tetra Tech, Inc.

Feeney, Leora, November 21, 1996, personal communication with Jane Steven, Tetra Tech, Inc.

Goodemote, Gary, Uribe and Associates, September 25, 1996, personal communication with Richard Grassetti, Grassetti Environmental Consulting.

Guldner, Ed, Fleet and Industrial Supply Center Oakland, May 22, 1996, personal communication with Richard Grassetti, Grassetti Environmental Consulting.

Guldner, Ed, Fleet and Industrial Supply Center Oakland, June 5, 1996, personal communication with Terry Witherspoon, Tetra Tech, Inc.

Guldner, Ed, Fleet and Industrial Supply Center Oakland, June 6, 1996, personal communication with Nolan Rhem, Tetra Tech, Inc.

Guldner, Ed, Fleet and Industrial Supply Center Oakland, June 10, 1996, personal communication with Ed Bondoc, Tetra Tech, Inc.

Guldner, Ed, Fleet and Industrial Supply Center Oakland, June 19, 1996, personal communication with Mark Bowman, Dowling Associates.

Guldner, Ed, Fleet and Industrial Supply Center Oakland, December 13, 1996, personal communication with Tetra Tech, Inc.

Harvey, Tom, East Bay Municipal Utility District, April 19, 1996, personal communication with John Bock, Tetra Tech, Inc.

Herman, Douglas, Port of Oakland, May 13, 1996, personal communication with Richard Grassetti, Grassetti Environmental Consulting.

Herman, Douglas, Port of Oakland, September 18, 1996, personal communication with Richard Grassetti, Grassetti Environmental Consulting.

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Mach, Randy, City of Oakland Traffic Engineering & Parking, personal communication with Mark Bowman, Dowling Associates on annual daily traffic for streets at railroad crossings, 1976-1994.

Mankowski, Ted, Port of Oakland, July 2, 1996, personal communication with Nolan Rhem, Tetra Tech, Inc.

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Parsons, John, Public Works Center San Francisco Bay, May 23, 1996, personal communication with Stephen Burger, Tetra Tech, Inc.

Payne, Ronald, City of Oakland Police Department, June 5, 1996, personal communication with Ed Bondoc.

Prall, John, Port of Oakland, October 23, 1996, personal communication with Tetra Tech, Inc.

Putz, James, Port of Oakland, July 8, 1996, personal communication with Nolan Rhem, Tetra Tech, Inc.

Putz, James, Port of Oakland, August 1, 1996, personal communication with Terry Witherspoon.

Putz, James, Port of Oakland, August 27, 1996, personal communication with Mark Bowman.

Sanchez, Ernest, Alameda Oakland Ferry, January 7, 1997, personal communication with Kevin Keck, Dowling Associates.

Sanders, Milton, Spectrum Medical Care Clinic, July 10, 1996, personal communication with Ed Bondoc, Tetra Tech, Inc.

Sanderson, Susan, City of Berkeley, personal communication with Mark Bowman, Dowling Associates on annual daily traffic for streets at railroad crossings, 1986 and 1996 estimates.

Sims, Michael, City of Oakland Police Department, July 8 and November 6, 1996, personal communication with Ed Bondoc, Tetra Tech, Inc.

Seelenger, Sherm, US Navy Engineering Field Activity West, March 1996, personal communication with Richard Grassetti, Grassetti Environmental Consulting.

Serventi, Jerry, Port of Oakland, May 23, 1996, personal communication with Richard Grassetti, Grassetti Environmental Consulting.

Speakman, John, City of Oakland Fire Department, June 5 and October 29, 1996, personal communication with Ed Bondoc, Tetra Tech, Inc.

Suzuki, Susan, East Bay Municipal Utility District, September 19, 1996, personal communication with Richard Grassetti, Grassetti Environmental Consulting.

Szymanski, Stephanie, NAS Alameda Environmental Office Stormwater Program, March 19, 1996, personal communication with Richard Grassetti, Grassetti Environmental Consulting.

Tannehill, David, Metropolitan Transportation Commission, September 25, 1996, personal communication with Robert Sculley, Tetra Tech, Inc.

Van Peeters, William, US Navy Engineering Field Activity West, June 4, 1996, personal communication with Rosalyn Johnson, Tetra Tech, Inc.

Wall, Lou, US Navy Engineering Field Activity West, July 15, 1996, personal communication with Steven Mikesell, JRP Historical Consulting Services.

Watters, Diana, California Department of Fish and Game, July 2, 1996, personal communication with Rosalyn Johnson, Tetra Tech, Inc.

Whittington, Anne, Port of Oakland, June 13, 1996, personal communication with Mara Feeney, Mara Feeney & Associates.

Whittington, Anne, and Adams, David, Port of Oakland, June 14, 1996, personal communication with Mark Bowman, Dowling Associates.

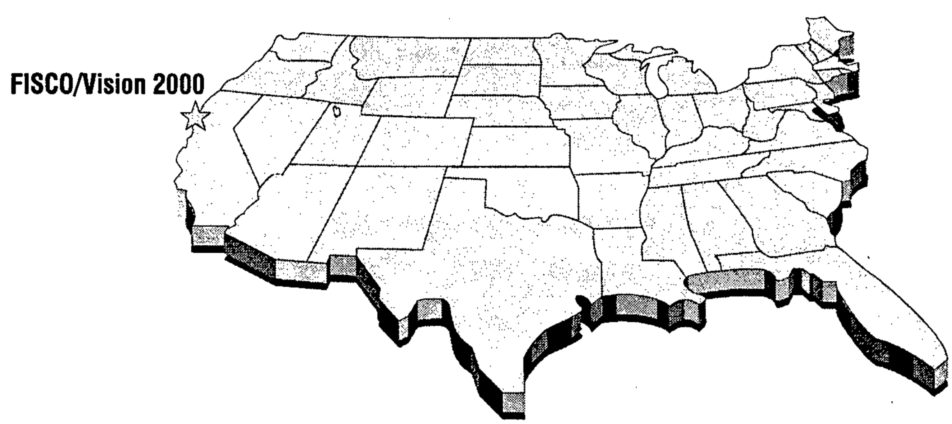
Whittington, Anne, Port of Oakland, July 19, 1996, personal communication with Mara Feeney, Mara Feeney & Associates.

Whittington, Anne, Port of Oakland, September 10, 1996, personal communication with Mara Feeney, Mara Feeney & Associates.

Whittington, Anne, Port of Oakland, December 13, 1996, personal communication with Tetra Tech, Inc.Wolf, Marty, Radian International, personal communication with Mark Bowman, Dowling Associates.

Wong, Peter, Fleet and Industrial Supply Center Oakland, May 22, 1996, personal communication with Richard Grassetti, Grassetti Environmental Consulting.

Zaitlin, Jody, Port of Oakland, July 8, 1996, personal communication with Rosalyn Johnson, Tetra Tech, Inc.



9.0 LIST OF PREPARERS

CHAPTER 9
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Mara Feeney and Associates

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Nolte and Associates

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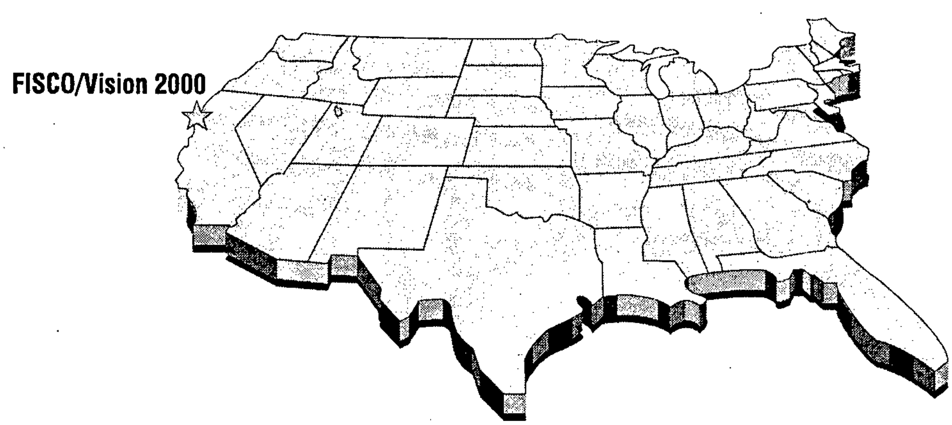


10.0 DISTRIBUTION LIST

CHAPTER 10
DISTRIBUTION LIST

Title	First	Last	Organization	Branch	City	State
			Elected Officials			
Mr.	Edward	Campbell	Alameda County	Board of Supervisors	Oakland	CA
Mr.	Keith	Carson	Alameda County	Board of Supervisors	Oakland	CA
Ms.	Mary	King	Alameda County	Board of Supervisors	Oakland	CA
Mr.	Don	Perata	Alameda County	Board of Supervisors	Oakland	CA
	Gail	Steele	Alameda County	Board of Supervisors	Oakland	CA
Honorable	Johan	Klehs	California Board of Equalization	District 1	Hayward	CA
Assemblyman	Tom	Bates	California State Assembly	District 14	Oakland	CA
Assemblywoman	Barbara	Lee	California State Assembly	District 16	Oakland	CA
Ms.	Wendy	Umino	California State Assembly	Office of Research	Sacramento	CA
Mr.	Steve	Macola	California State Senate	Base Closure Committee	Sacramento	CA
Senator	Nicholas	Petris	California State Senate	District 9	Oakland	CA
Mayor	Ralph	Appeizzato	City of Alameda	Office of the Mayor	Alameda	CA
Mayor	Mike	Brodsky	City of Albany	Office of the Mayor	Albany	CA
Mayor	Shirley	Dean	City of Berkeley	Office of the Mayor	Berkeley	CA
Mayor	Richard	Kassis	City of Emeryville	Office of the Mayor	Emeryville	CA
Councilmember	Shelia	Jordan	City of Oakland	City Council District 1	Oakland	CA
Councilmember	John	Russon	City of Oakland	City Council District 2	Oakland	CA
Councilmember	Natalie	Bayton	City of Oakland	City Council District 3	Oakland	CA
Councilmember	Dick	Spees	City of Oakland	City Council District 4	Oakland	CA
Councilmember	Ignacio	De La Fuente	City of Oakland	City Council District 5	Oakland	CA
Councilmember	Nate	Miley	City of Oakland	City Council District 6	Oakland	CA
Councilmember	Dezie	Woods-Jones	City of Oakland	City Council District 7	Oakland	CA
Councilmember	Henry	Chang	City of Oakland	City Council Office	Oakland	CA
Mayor	Elihu	Harris	City of Oakland	Office of the Mayor	Oakland	CA
Mayor	Milt	Kegley	City of Piedmont	Office of the Mayor	Piedmont	CA
Mayor	Willie	Brown	City of San Francisco	Office of the Mayor	San Francisco	CA
Mayor	Ellen	Corbett	City of San Leandro	Office of the Mayor	San Leandro	CA
			Congressman Dellum's Office		Oakland	CA
Mr.	John	Hass	Senator Boxer's Office		San Francisco	CA
Mr.	Russell	Lowe	Senator Feinstein's Office		San Francisco	CA
Senior Staff Member	Roberta	Brooks	9th Congressional District		Oakland	CA
District Director	Sandre	Swanson	9th Congressional District		Oakland	CA
			Federal Agencies			
			National Park Service	Golden Gate National Recreation Area	San Francisco	CA
Mr.	Ed	Keller	Oakland Army Base		Oakland	CA
Mr.	Steve	Leite	Oakland Army Base		Oakland	CA
Col.	Terry	Yon	Oakland Army Base		Oakland	CA

Title	First	Last	Organization	Branch	City	State
Capt.	Ken	Fitzgerald	Oakland Army Base	Military Traffic Management	Oakland	CA
Col.	A. C.	Ellis	Oakland Army Base	Office of Planning	Oakland	CA
Mr.	Bob	Taylor	US Army Corps of Engineers	Sacramento District (CESPK PM-M)	Sacramento	CA
			US Army Corps of Engineers	San Francisco District	San Francisco	CA
Mr.	Rod	Chisholm	US Army Corps of Engineers	San Francisco District	San Francisco	CA
Dr.	Richard	Lerner	US Army Corps of Engineers	San Francisco District	San Francisco	CA
LCDR	Rod	Smith	US Coast Guard	Code MLCP	Alameda	CA
			US Department of Commerce	National Oceanic & Atmospheric Administration	San Francisco	CA
Mr.	Michael	Liikala	US Department of Commerce	Office of the Secretary Western Region	San Francisco	CA
			US Department of Defense	Defense Technical Information Center, DTIC Help Desk (DTIC-BLS)	Fort Belvoir	VA
Mr.	Paul	Dempsey	US Department of Defense	Office of Economic Adjustment	Washington	DC
Mr.	Paul	Ryeff	US Department of Defense	Office of Economic Adjustment	Sacramento	CA
Mr.	George	Hoops	US Department of Education	Federal Real Property Assistance Program	Seattle	WA
Mr.	David	Hakola	US Department of Education	Federal Real Property Assistance Program Director	Washington	DC
			US Department of Energy	EC&E Environmental Program Division 3G-092	Oakland	CA
			US Department of Housing and Urban Development	Community Planning & Development 9ADE	San Francisco	CA
			US Department of Housing and Urban Development	Headquarters Library	Washington	DC
Mr.	Richard	Brown	US Department of Housing and Urban Development	Office of Community Viability	Washington	DC
			US Department of State	Environmental Affairs Office	Washington	DC
			US Department of the Interior	Bureau of Indian Affairs, Environmental Section Chief	Sacramento	CA
Mr.	Ed	Hestey	US Department of the Interior	Bureau of Land Management	Sacramento	CA
Mr.	Stanley	Albright	US Department of the Interior	National Park Service, Pacific West Region Field Director	San Francisco	CA
			US Department of the Interior	Office of Environmental Affairs	San Francisco	CA
			US Department of the Interior	Office of Environmental Affairs, Regional Officer	Washington	DC
Mr.	Pat	Port	US Department of the Interior	Office of Environmental Policy and Compliance	San Francisco	CA
			US Department of the Interior	Office of Environmental Project Review	San Francisco	CA
			US Department of the Interior	Office of the Secretary	San Francisco	CA
			US Department of the Interior, USGS	Director's Representative	Menlo Park	CA
			US Department of the Interior, USGS	Regional Hydrologist, Water Resources Division	Menlo Park	CA
			US Department of Transportation		Washington	DC

Title	First	Last	Organization	Branch	City	State
Ms.	Julie	Cirillo	US Department of Transportation	Federal Highway Administration Regional Administrator	San Francisco	CA
Ms.	Laurie	Kahele	US Department of Transportation	Region IX Secretary	San Francisco	CA
Ms.	Erika	Hoffman	US Environmental Protection Agency	Dredging Project	San Francisco	CA
Mr.	Ken	Mittlehotz	US Environmental Protection Agency	Office of Federal Affairs	Washington	DC
			US Environmental Protection Agency	Public Information Center	Washington	DC
Ms.	Carla	Moore	US Environmental Protection Agency	Region 9	San Francisco	CA
Mr.	Philip	Ramsey	US Environmental Protection Agency	Region 9	San Francisco	CA
Ms.	Kathleen	Goforth	US Environmental Protection Agency	Region 9 (A-1) Oakland Environmental Justice	San Francisco	CA
Ms.	Esther	Hill	US Environmental Protection Agency	Region 9 (Code H-9-2)	San Francisco	CA
Mr.	David	Farrel	US Environmental Protection Agency	Region 9 (E-1)	San Francisco	CA
Mr.	David	Tomsovic	US Environmental Protection Agency	Region 9 Office of External Affairs	San Francisco	CA
Mr.	Joel	Medlin	US Fish & Wildlife Service	Ecological Services	Sacramento	CA
Ms.	Cathy	Osugi	US Fish & Wildlife Service	Realty Division (ARW-RE)	Portland	OR
			US Fish & Wildlife Service	Sacramento Field Office	Sacramento	CA
Ms.	Marge	Kolar	US Fish & Wildlife Service	San Francisco Bay National Wildlife Refuge	Newark	CA
Ms.	Dianne	Cah	US General Services Administration		San Francisco	CA
			US General Services Administration	Sansome Street Field Office	San Francisco	CA
			US Maritime Administration		San Francisco	CA
Mr.	James	Bybee	US National Marine Fisheries Service	Southwest Region HCB	Santa Rosa	CA
Ms.	Courtney	Damkroger	US National Trust for Historic Preservation		San Francisco	CA
			State Agencies			
Mr.	Bob	Fletcher	CA Air Resources Board		Sacramento	CA
			CA Coastal Commission		San Francisco	CA
			CA Council for Environmental & Economic Balance		San Francisco	CA
			CA Department of Boating & Waterways		Sacramento	CA
			CA Department of Conservation	Division of Mines & Geology	San Francisco	CA
Mr.	Dennis	O'Bryant	CA Department of Conservation	Program Coordinator	Sacramento	CA
Mr.	Pete	Phillips	CA Department of Fish & Game	Environmental Services Division	Sacramento	CA
Mr.	Brian	Hunter	CA Department of Fish & Game	NW Region 3	Yountville	CA
Mr.	Douglas	Wickizer	CA Department of Forestry		Sacramento	CA
			CA Department of Health Services		Sacramento	CA
			CA Department of Health Services	Director	Sacramento	CA
Mr.	Jerome	Lucas	CA Department of Health Services	Office of Noise Control	Berkeley	CA
Mr.	Ken	Pierce	CA Department of Parks & Recreation	Resource Management Division	Sacramento	CA
Ms.	Cherilyn	Widell	CA Department of Parks & Recreation	State Historic Preservation Officer	Sacramento	CA
Mr.	Robert	Berry	CA Department of Trade and Commerce		Sacramento	CA
			CA Department of Transportation		Sacramento	CA
Ms.	Beth	Krase	CA Department of Transportation	District 4	Oakland	CA

Title	First	Last	Organization	Branch	City	State
Mr.	Gary	Adams	CA Department of Transportation	District 4 CEQA Coordinator	Oakland	CA
Mr.	Terry	Barrie	CA Department of Transportation	Transportation Planning	Oakland	CA
Mr.	Walt	Pettit	CA Department of Water Resources		Sacramento	CA
			CA Environmental Protection Agency		Sacramento	CA
Ms.	Susan	Jun	CA Environmental Protection Agency		Berekeley	CA
Mr.	Chein	Kao	CA Environmental Protection Agency	Dept. of Toxic Substance Control, Office of Military Facilities	Berekeley	CA
Ms.	Theresa	McGarry	CA Environmental Protection Agency	Dept. of Toxic Substance Control, site Miigation Program	Sacramento	CA
Ms.	Diana	Peebler	CA Environmental Protection Agency	Office of Military Facilities - Reuse Rep.	Sacramento	CA
			CA Environmental Trust		San Francisco	CA
			CA Highway Patrol	Golden Gate Division	Vallejo	CA
			CA Highway Patrol	Long Range Planning Section	Sacramento	CA
			CA Integrated Waste Management Board		Sacramento	CA
			CA Office of Emergency Services		Pleasant Hill	CA
Mr.	Mike	Chiaritti	CA Office of Planning & Research		Sacramento	CA
Mr.	Ernie	von Ibsch	CA Public Utilities Commission	Safety and Enforcement Division, Railroad Operations Safety Section	San Francisco	CA
Mr.	Vincent	Christian	CA Regional Water Quality Control Board		Oakland	CA
Mr.	John	Adams	CA Regional Water Quality Control Board	Land Disposal Section	Sacramento	CA
Mr.	Douglas	Wheeler	CA Resources Agency		Sacramento	CA
			CA State Clearinghouse		Sacramento	CA
Ms.	Jane	Sekelsky	CA State Lands Commission	Division of Land Management Chief	Sacramento	CA
Mr.	Dave	Plummer	CA State Lands Commission	Division of Research & Planning	Sacramento	CA
			CA State Lands Commission	Environmental Planning & Management	Sacramento	CA
			State of California	PUC Railroad Operations & Safety Branch	San Francisco	CA
			Local Agencies			
			Alameda Chamber of Commerce		Alameda	CA
Ms.	Jean	Hartz	Alameda County	CMA	Oakland	CA
Mr.	Steven	Szalay	Alameda County	County Administrator	Oakland	CA
Mr.	William	McCammon	Alameda County	County Fire Department Chief	San Leandro	CA
Mr.	Rafat	Shahid	Alameda County	Division of Hazardous Materials	Oakland	CA
Mr.	Bruce	Kern	Alameda County	Economic Development Director	Oakland	CA
			Alameda County	Flood Control & Water Conservation Dpmt.	Hayward	CA
Ms.	Darlene	Smith	Alameda County	General Services Agency	Oakland	CA
Mr.	Edgar	Howell	Alameda County	Hazardous Materials Program	Oakland	CA
			Alameda County	Health and Social Services Director	Oakland	CA

Title	First	Last	Organization	Branch	City	State
Mr.	Edward	Howell	Alameda County	Health Care Services Agency	Alameda	CA
			Alameda County	Mosquito Abatement District	Haywad	CA
Mr.	William	Fraley	Alameda County	Planning Department	Hayward	CA
Mr.	James	Sorenson	Alameda County	Planning Department Development Planning	Hayward	CA
Mr.	Adolph	Martinelli	Alameda County	Planning Department Director	Hayward	CA
Mr.	Jack	Shepherd	Alameda County	Planning Department Housing/Community Dev.	Hayward	CA
Ms.	Deborah	Stein	Alameda County	Planning Department Policy Planning	Hayward	CA
Mr.	Steve	Richards	Alameda County	Planning Department Zoning Administration	Hayward	CA
Mr.	Donald	LaBelle	Alameda County	Public Works Agency Director	Hayward	CA
Sheriff	Charles	Plummer	Alameda County	Sheriff's's Department	Oakland	CA
Mr.	Rodger	Lum	Alameda County	Social Services Agency Director	Oakland	CA
Ms.	Kathy	Archuleta	Alameda County	Social Services Economic Services	Oakland	CA
Mr.	Mario	Solis	Alameda County	Social Services Employment & Community Services	Oakland	CA
.	A.J.	Gallardo	Alameda County	Transportation Authority	Oakland	CA
Mr.	Terry	Bursztynsky	Association of Bay Area Governments		Oakland	CA
Ms.	Patricia	Perry	Association of Bay Area Governments		Oakland	CA
Mr.	Eugene	Leong	Association of Bay Area Governments	Executive Director	Oakland	CA
Mr.	Gary	Binger	Association of Bay Area Governments	Planning Director	Oakland	CA
Ms.	Katherine	Fourtney	Bay Area Air Quality Management District		San Francisco	CA
Ms.	Ellen	Garvey	Bay Area Air Quality Management District	Executive Director	San Francisco	CA
Mr.	Bruce	Knopf	CIty of Alameda	Community Development Department	Alameda	CA
Ms.	Colette	Meunier	City of Alameda	Planning Department	Alameda	CA
Ms.	Gail	Kelly	City of Berkeley	Planning Department	Berkeley	CA
Ms.	Gaye	Quinn	City of Emeryville	Planning Department	Emeryville	CA
Mr.	Andrew	Clark-Clough	City of Oakland		Oakland	CA
Ms.	Michele	Molotsky	City of Oakland	City Council Office 2nd Floor	Oakland	CA
Mr.	Larry	Reid	City of Oakland	Chief of Staff	Oakland	CA
Mr.	Ralph	Wheeler	City of Oakland	City Attorney	Oakland	CA
Ms.	Ceda	Ford	City of Oakland	City Clerk	Oakland	CA
Ms.	Jayne	Becker	City of Oakland	City Council Office	Oakland	CA
Ms.	Frances	David	City of Oakland	City Council Office	Oakland	CA
Mr.	Jay	Leonhardy	City of Oakland	City Council Office 2nd Floor	Oakland	CA
Mr.	Craig	Kocian	City of Oakland	City Manager	Oakland	CA
Mr.	Ezra	Rapport	City of Oakland	City Manager	Oakland	CA
Ms.	Jean	Hart	City of Oakland	CMA	Oakland	CA
Chair	Queen	Thurston	City of Oakland	Coaltion for West Oakland Revitalization	Oakland	CA
Mr.	Willie	Yee	City of Oakland	Comprehensive Planning	Oakland	CA
			City of Oakland	Development Services Department Director	Oakland	CA
Mr.	John K.	Baker	City of Oakland	Fire Chief	Oakland	CA

Title	First	Last	Organization	Branch	City	State
			City of Oakland	Fire Department	Oakland	CA
Mr.	Steven	Hallert	City of Oakland	Fire Prevention Bureau	Oakland	CA
Mr.	James	Rinehart	City of Oakland	Manager of Economic Development	Oakland	CA
Mr.	Dennis	Lockett	City of Oakland	Oakland Construction Employment Referral Program	Oakland	CA
Mr.	Mark	Beratra	City of Oakland	Office of Economic Development & Employment	Oakland	CA
Ms.	Stephanie	Floyd-Johnson	City of Oakland	Office of Economic Development & Employment	Oakland	CA
Mr.	James	Reinhart	City of Oakland	Office of Economic Development & Employment	Oakland	CA
Mr.	James	Ashley	City of Oakland	Office of General Services	Oakland	CA
Mr.	Lonnie	Carter	City of Oakland	Office of Housing & Neighborhood Development	Oakland	CA
Ms.	Antoinette	Hewlett	City of Oakland	Office of Housing & Neighborhood Development	Oakland	CA
Mr.	Michael	Bridges	City of Oakland	Office of Marketing & Public Information	Oakland	CA
Ms.	Mona	Lombard	City of Oakland	Office of Marketing & Public Information	Oakland	CA
Mr.	Cleve	Williams	City of Oakland	Office of Parks and Recreation	Oakland	CA
Mr.	Andy	Altman	City of Oakland	Office of Planning and Building Services	Oakland	CA
Mr.	Kofi	Bonner	City of Oakland	Office of Planning and Building Services	Oakland	CA
Ms.	Iris	Starr	City of Oakland	Office of Planning and Building Services	Oakland	CA
Mr.	Terry	Roberts	City of Oakland	Office of Public Works	Oakland	CA
Mr.	Jim	Brown	City of Oakland	Office of Retirement & Risk Administration	Oakland	CA
Ms.	Viola	Gonzales	City of Oakland	Office of the Mayor	Oakland	CA
Ms.	Anu	Raud	City of Oakland	Planning & Building Department	Oakland	CA
Ms.	Jean	Blacksher	City of Oakland	Planning Commission	Oakland	CA
Mr.	Joseph	DeLuca	City of Oakland	Planning Commission	Oakland	CA
Ms.	Dolores	Jaquez	City of Oakland	Planning Commission	Oakland	CA
Mr.	Anthony	Pegram	City of Oakland	Planning Commission	Oakland	CA
Mr.	Vincent	Reyes	City of Oakland	Planning Commission	Oakland	CA
Ms.	Linda	Bytof	City of Oakland	Planning Commission	Oakland	CA
Mr.	Phil	Tagami	City of Oakland	Planning Commission	Oakland	CA
Mr.	Chris	Buckley	City of Oakland	Planning Department	Oakland	CA
Ms.	Eloise	Thornton	City of Oakland	Planning Department	Oakland	CA
			City of Oakland	Planning Director	Oakland	CA
Mr.	Joseph	Samuels	City of Oakland	Police Chief	Oakland	CA
Mr.	Richard	Lloyd	City of Oakland	Pres. Advisory Board	Oakland	CA
Mr.	Carl	Bobino	City of Oakland	Public Health Department	Oakland	CA
Ms.	Brooke	Levin	City of Oakland	Public Works & Environmental Affairs	Oakland	CA
			City of Oakland	Public Works Director	Oakland	CA
Mr.	Mike	Pickering	City of Oakland	Public Works Transportation Services	Oakland	CA
Mr.	Frank	Fanelli	City of Oakland	Real Estate	Oakland	CA
Ms.	Surlene	Grant	City of Oakland	Senior Transportation Planner	Oakland	CA
			City of Oakland	Water Superintendent	Oakland	CA

Title	First	Last	Organization	Branch	City	State
Ms.	Aletha	Cannon	City of Oakland	West Oakland Development Program	Oakland	CA
Mr.	Mike	Powers	City of Richmond	Office of Port Director	Richmond	CA
Mr.	John	Christenson	Oakland Chamber of Commerce		Oakland	CA
			Oakland Chamber of Commerce	Executive Vice President	Oakland	CA
Mr.	Robert	Toney	Oakland Convention & Visitors Bureau		Oakland	CA
			Restoration Advisory Board			
Ms.	Jo	Avalos	US Navy	FISCO PAO	Oakland	CA
Mr.	Lou	Ocampo	US Navy	EFA West, Code 18	San Bruno	CA
Ms.	Dian	Heinz	Port of Oakland		Oakland	CA
Mrs.	Aniece	Daniel			Oakland	CA
Mr.	Clifton	Davenport			Alameda	CA
Mr.	Michael	Della-Rocco			Burlingame	CA
Mr.	Art	Fong			Oakland	CA
Mr.	Bobby	Frantz			Oakland	CA
Mr.	Leroy	Griffin			Oakland	CA
Ms.	Mattie	Holiday			Oakland	CA
Mr.	Kurt	Libby			Alameda	CA
Mr.	Harold	Logwood			Oakland	CA
Mr.	Charles	Marshall			Oakland	CA
Mr.	Daryl	Meshack			Oakland	CA
Mr.	Lonnie	Robinson			Oakland	CA
Mr.	Jerry	Sasse			San Ramon	CA
Mr.	Claud	Thomas			Oakland	CA
Ms.	Michele	Williams			Oakland	CA
			Organizations			
Ms.	Tina	Combs	26th Avenue Neighborhood Association		Oakland	CA
Mr.	Jai Jai	Noire	2900 Block California Street		Oakland	CA
Ms.	Anne	Schuermann	42nd Street Martin Luther King Jr. Way		Oakland	CA
Mr.	Armando	Accunero	44th Street Neighborhood Development Club		Oakland	CA
Ms.	Sharon	Banks	AC Transit		Oakland	CA
Mr.	Mike	Mills	AC Transit	General Manager	Oakland	CA
Ms.	Arthalia	Ray	ACORN		Oakland	CA
Ms.	Andrea M.	Dawson	Acumen Building Enterprises		Oakland	CA
Ms.	Jeanne	Silverman	Adams Point Merchants Association		Oakland	CA
Mr.	Ron	Morra	Adams Point Preservation Society		Oakland	CA
			Advisory Council on Historic Preservation		Washington	DC
Ms.	Claudia	Nissley	Advisory Council on Historic Preservation	Western Division, Project Review	Golden	CO
Mr.	Rafeeg	Naji	African-American Development Association		Oakland	CA
Ms.	Karen	Winters	Allegro Neighborhood Group		Oakland	CA
Mr.	Nathaniel	Arnold	Allendale District Improvement Association		Oakland	CA
Mr.	Carl	Kuhnert	Alpine Terrace Neighborhood Association		Oakland	CA
Ms.	Irene	Zwierlein	Amah Tribal Band		Woodside	CA
Ms.	Lisa	Jones	ANEW		Oakland	CA
Ms.	Lavern	Holmes	Apricot Street Home Alert		Oakland	CA
			Asian Immigrant Workers Advocates		Oakland	CA
			Asian Pacific Environmental Network		Oakland	CA
Ms.	Joann	Yoshioka	Assets Senior Employment Opportunities		Oakland	CA
Dr.	Rodger	Shepherd	Associated Residents of Sequoyah Highlands		Oakland	CA
Mr.	Jack	Fields	Atchison Topeka & Santa Fe	International Sales & Service	Schaumber	IL

Title	First	Last	Organization	Branch	City	State
Mr.	Carlos	Brewer	Atchison Topeka & Santa Fe	Railroad Operations	Richmond	CA
Mr.	Austin	Penny	Austin Penny & Associates		Oakland	CA
Mr.	Arvi	Dorsey	Bancroft/Fairfax Merchants		Oakland	CA
Ms.	Joan	Waranoff	Bay Area Bioscience Center		Oakland	CA
Mr.	Angelo	Siracusa	Bay Area Council	President	San Francisco	CA
Ms.	Louise	Aiello	Bay Area Economic Forum	Bay Area Defense Conversion Action Team	San Francisco	CA
Ms.	Sunne	Wright McPeak	Bay Area Economic Forum	President/CEO	San Francisco	CA
Mr.	Richard	White	Bay Area Rapid Transit	General Manager	Oakland	CA
Ms.	Margaret	Pryor	Bay Area Rapid Transit	Vice President, Board of Directors	Oakland	CA
Mr.	Walter	Brame	Bay Area Urban League		Oakland	CA
			Bay Dredging Action Coalition		Oakland	CA
Ms.	Ellen	Johnck	Bay Planning Coalition		San Francisco	CA
Ms.	Frances	Farmer	Bella Vista Area Neighborhood Group		Oakland	CA
Ms.	Robin	Walker	Beth Eden Housing		Oakland	CA
Ms.	Diane	Howell,	Black Business Listings		Oakland	CA
Ms.	Mary	Sanichas	Broadway Macarthur Neighbors		Oakland	CA
Ms.	Millicent	Reguzzoni	Broadway Terrace Homeowners Association		Oakland	CA
Miss	Delores	Booth	Broadway-Manila Neighborhood Committee		Oakland	CA
Mr.	Frank	Gilbert	Brookfield Home Improvement Association		Oakland	CA
Ms.	Jane	Spangler	Brooklyn Neighborhood Preservation Association		Oakland	CA
			Buller Properties	Buller Family Partnership	San Francisco	CA
Ms.	Michelle	Brown	Business Development, Inc.		Oakland	CA
Mr.	Luke	Lynch	California Cartage Company		Long Beach	CA
			California Hotel		Oakland	CA
Mr.	Mike	White	California Labor Foundation		San Francisco	CA
			California Native Plant Society	East Bay Chapter	Berkeley	CA
			California Networks for a New Economy		San Francisco	CA
Ms.	Karen	Crit	California Research Bureau		Sacramento	CA
Mr.	James	Chin	Catholic Charities Senior Employment Program		Oakland	CA
			Center for Economic Conversion		Mountain View	CA
			Center for Marine Conservation		San Francisco	CA
Ms.	Bonita	Sizemore	Centre Pointe		Oakland	CA
Mr.	Mike	Tieman	Chipman Freight Service		Oakland	CA
Mr.	Jack	Atkin	Citizens Emergency Relief Team	Bethlehem Lutheran Church	Oakland	CA
			Citizens for a Better Evironment		San Francisco	CA
Mr.	Randall	Hong	Cleveland/China Hill Neighborhood Association		Oakland	CA
Ms.	Willa	Bruce	Coalition for West Oakland Revitalization		Oakland	CA
Mr.	Bill	Chorneau	Coalition for West Oakland Revitalization		Oakland	CA
Dr.	Ralbert	Brooks	Coalition for West Oakland Revitilization		Oakland	CA
Mr.	Wjeta	Milele	Coalition for West Oakland Revitilization		Oakland	CA
Ms.	Barbara	Montgomery	Coalition for West Oakland Revitilization		Oakland	CA
Mr.	Arthur	O'Neal	Coalition for West Oakland Revitilization		Oakland	CA
Mr.	Waheed	Zafar	Coalition for West Oakland Revitilization		Oakland	CA
Ms.	Kathleen	Van Velsor	Coastal Advocates		Los Gatos	CA

Title	First	Last	Organization	Branch	City	State
Ms.	Jenny	Palmer	College Avenue Merchants Association		Oakland	CA
Mr.	Fred C.	Schmidt	Colorado State University	The Libraries, Documents Department - KS	Fort Collins	CO
Mr.	Denny	Larson	Committee for a Better Environment		San Francisco	CA
Ms.	Altha	Washington	Concerned Citizens of Elmhurst Neighborhood		Oakland	CA
Ms.	Ethel	Oliver	Concerned Citizens of South Eastmont		Oakland	CA
Ms.	Julia	Nichols	Consortium of United Indian Nations		Oakland	CA
Mr.	Dick	Horn	Conway Intermodal		Oakland	CA
Mr.	Alfred	Blunt	Crest Avenue Homeowners Association		Oakland	CA
			Ctitzens for a Better Environment		San Francisco	CA
Ms.	Janet	Broughton	Diamond Improvement Association		Oakland	CA
Mr.	Glenn	Bigelow	Dimond Business & Professional Association		Oakland	CA
Mr.	Don	Dommer	Don Dommer Associates		Oakland	CA
Mr.	Nicolas	Sakkis	Downtown Gateway Association		Oakland	CA
	W.	Mitchell	Durant Neighborhood Group		Oakland	CA
Ms.	Winifred	Walsh	Durant Park Highlands		Oakland	CA
Mr.	Bob	Fairbanks	Eagle Marine Services		Oakland	CA
Ms.	Martha	Matsuoka	Earth Island Institute	Urban Habitat Program	San Francisco	CA
Mr.	Randall	Fong	East Bay Asian Business & Building Professionals		Oakland	CA
Mr.	Michael	Rosevelt	East Bay Conservation Corps		Oakland	CA
Mr.	Michael	Torrey	East Bay Conver. & Reinvestment Comm.		Alameda	CA
Mr.	William	Kirkpatrick	East Bay Municipal Utility District	Division of Water Distribution Planning	Oakland	CA
Mr.	Robert	Newman	East Bay Municipal Utility District	Environmental Compliance Specialist	Oakland	CA
Mr.	Joe	Damas	East Bay Municipal Utility District	Manager, Source Control Division	Oakland	CA
Ms.	Susan	Smartt	East Bay Regional Park District	Finance and Legislation	Oakland	CA
Mr.	Ira	Jinkins	East Oakland Sports Complex Committee		Oakland	CA
Mr.	Henry	Hempbill	Eastmont Mall		Oakland	CA
Mr.	David	Wilson	EBCRC		Oakland	CA
Mr.	Michael	Warburton	Ecology Center		Berkeley	CA
			Economic Development & Construction, Inc.		Oakland	CA
Mr.	Charles	Hill	Elmhurst Merchant Association		Oakland	CA
Ms.	Pam	Franz	Environmental Defense Fund		Oakland	CA
Mr.	David	Roe	Environmental Defense Fund		Oakland	CA
Mr.	John	Rosengard	ERCI		Piedmont	CA
			Father Divine Apostleship of the Sea		Oakland	CA
			Federal Emergency Management Agency	Region 9 Director	San Francisco	CA
Mr.	Eduardo	Valladares	Filipinos for Affirmative Action		Oakland	CA
Mr.	John S.	Salle	First United Services Credit Union		Hayward	CA
			Gateway Trucking Services	c/o California Crating Co.	Long Beach	CA
Ms.	Gwin	Richards	Glen Oaks Way Neighborhood Associates		Oakland	CA
Mr.	Dennis	Fong	Glenarms Neighborhood Coalition		Oakland	CA
Mr.	Michael	Gabriel	Glenview Neighborhood Associates		Oakland	CA
Mr.	John	Seymour	Gold Coast Property Owners & Managers Assoc.		Oakland	CA
Mr.	Phillip	Tagami	Gold Coast Property Owners & Managers Assoc.		Oakland	CA

Title	First	Last	Organization	Branch	City	State
			Golden Gate Audubon Society		Berkeley	CA
Mr.	Alan	Ramo	Golden Gate University	Director, Environmental Law & Justice Clinic	San Francisco	CA
Mr.	Lenny	Fisher	Grand Avenue Business Associates	c/o McDenn Art	Oakland	CA
Ms.	Diana	Yonkouski	Gravatt Homeowners Association		Berkeley	CA
			Greenpeace		San Francisco	CA
Mr.	Edward	Ueber	Gulf of Far. Nat. Mar. Sanc.		San Francisco	CA
Ms.	Sandra	Harson	H. Robinson Baker Y.M.C.A.		Oakland	CA
Mr.	Anthony	McNeal	H. Robinson Baker Y.M.C.A.		Oakland	CA
Mr.	William	Moore	Haddon Hill Neighborhood Association		Oakland	CA
Mr.	Pietro	Parravano	Half Moon Bay Fisherman's Assoc.		Half Moon Bay	CA
Mr.	Dennis	Van Wagner	Hawk Transportation		Oakland	CA
Mr.	Dave	Pelto	High Street Neighborhood Coalition		Oakland	CA
Mr.	Jeffrey	Franzen	Hill Area Coalition Homeowners Association		Oakland	CA
Mr.	Ron	Silva	Hispanic Chamber Of Alameda County		Alameda	CA
Mr.	Joseph	Newman	Housing & Homeless Toler Heights		Oakland	CA
Mr.	Larry	Kinslow	IAM&AW, Lodge 1584		Oakland	CA
Ms.	Ann Marie	Sayer	Indian Canyon Mutsun Band of Costanoan		Hollister	CA
			Intertribal Friendship House	Office of the Executive Director	Oakland	CA
Ms.	Marti	Mogensen	Irwin Court Neighbors Association		Oakland	CA
Mr.	Bill	Fritzsche	Joaquin Miller 'Heights' Association		Oakland	CA
Ms.	Patricia	Nelson-Doyle	Jubilee West, Inc.	Attn: Jonathan Austin	Berkeley	CA
Mr.	Ken	Jones	Jubilee West, Inc.	Liberty Hall	Oakland	CA
Ms.	Ann	Park	Korean Community Center		Oakland	CA
Mr.	Awele	Makeba	Lake Merritt Community Association		Oakland	CA
Ms.	Carol	Ellis	Lakeshore Homes Association		Oakland	CA
Ms.	Claudia	Skapik	Lakeshore Homes Association		Oakland	CA
Ms.	Marlene	Oehler	Lakeshore Merchants Association		Oakland	CA
Ms.	Helaine	Prentice	Landmarks Preservation Advisory Board		Oakland	CA
Ms.	Catherine	Gueldner	League of Women Voters		Oakland	CA
Ms.	Virginia	Hamrick	League of Women Voters		Oakland	CA
Ms.	Barbara	Rufner	League of Women Voters		Oakland	CA
			League of Women Voters	Bay Area	Lafayette	CA
Ms.	Mary	Strauss	League of Women Voters of Oakland		Oakland	CA
Ms.	Joan	Cannelli	Lincoln-Charleston Street Organization		Oakland	CA
Ms.	Shirley	Wars	Local 250		Oakland	CA
Mr.	Richard	Cowan	Macarthur Coalition		Oakland	CA
Mr.	Glenn	Eddy	Maersk Pacific Ltd.		Oakland	CA
Mr.	Craig	Lyall	Margarido Drive/Oceanview Neighborhood		Oakland	CA
Mr.	Bob	Miller	Matson Terminal		Oakland	CA
Ms.	Mary	Mize	Matson Terminal	Code 100A	Oakland	CA
Mr.	Darrell	Ford	MAWPAO		Oakland	CA
Mr.	Monsa	Nitoto	MAWPAO		Oakland	CA
Mr.	Bishop	Johnson	McClymonds Neighborhood Association		Oakland	CA
Mr.	Jerry	Rose	Merriewood-Forest Park Homeowners Assoc.		Oakland	CA
Mr.	Bruce	Thompson	Metropolitan Homeowners Association		Oakland	CA
Mr.	Chris	Brittle	Metropolitan Transportation Commission	Metro Center, Planning Department	Oakland	CA
Ms.	Kim	Krohr	Metropolitan Transportation Commission	Metro Center, Technical Services	Oakland	CA

Title	First	Last	Organization	Branch	City	State
			Military Toxics Projects		San Francisco	CA
Mr.	Ray	Hernandez	Minority Business Development Center/NEDA		Oakland	CA
Mr.	Gil	Jung	Montebello Terrace Homeowners Association		Oakland	CA
Mr.	Bill	Posonen	Montebello Terrace Homeowners Association		Oakland	CA
Ms.	Alberta	Hadley	Mosswood Community Alliance		Oakland	CA
Ms.	Rosemary	Cambra	Muwekma Indian Tribe		San Jose	CA
Mr.	Michael	Deflorimonte	National Association of Minority Contractors		Oakland	CA
Ms.	Cynthia	Koehler	National Heritage Institute		San Francisco	CA
			National Marine Fisheries Service	Environmental Assessment Branch	Tiburon	CA
Mr.	Larry	Myers	Native American Heritage Commission	Executive Secretary	Sacramento	CA
Mr.	Hal	Candee	Natural Resources Defense Council		San Francisco	CA
			Nature Conservancy		San Francisco	CA
Mr.	Malcolm	Carson	NEDLC		Oakland	CA
Capt.	Philip	Ezekiel	Neptune Orient Lines		Oakland	CA
Mr.	David	Adam	Northern California Marine Terminals Corp.		Oakland	CA
Mr.	Jon	Roselle	Northern California Matson Terminals Inc.		Oakland	CA
Mr.	Clinton	Killian	Oak Center AC Transit		Oakland	CA
Mr.	Tex	Teixeira	Oakland Airport Center Inc.		Oakland	CA
Mr.	Paul	Naham	Oakland Base Reuse Authority	Executive Director	Oakland	CA
Mr.	Mel	Blair	Oakland Base Reuse Authority	Senior Planner	Oakland	CA
Mr.	Oscar	Coffey	Oakland Black Chamber		Oakland	CA
Mr.	Danny	Wong	Oakland Community Development Districts	OCD-West, Office of Housing and Neighborhood Development	Oakland	CA
Mr.	Chris	Parillo	Oakland Design Advocates		Oakland	CA
Mr.	Ken	Ryan	Oakland Design Advocates		Oakland	CA
			Oakland Heritage Alliance		Oakland	CA
Ms.	Marilyn	Handis	Oakland Private Industry Council		Oakland	CA
Mr.	Phillip	Copple	Oakland Terminal Railway		Oakland	CA
Mr.	Bob	Long	Oakland Unified School District		Oakland	CA
Ms.	Jean	Quan	Oakland Unified School District		Oakland	CA
Ms.	Marilee	Eckert	Oakland Youthworks		Oakland	CA
Mr.	Ernie	Sanchez	Oakland-Alameda Ferry Service		Oakland	CA
Mr.	David	Glover	OCCUR		Oakland	CA
Ms.	Sharon	Rodgers	OER	Planning Department	San Francisco	CA
Mr.	Andrew	Galvan	Ohlone/Costanoan		Mission San Jose	CA
Ms.	Jakki	Kehl	Ohlone/Costanoan		Byron	CA
Mr.	Kenneth	Marquis	Ohlone/Costanoan		San Jose	CA
Mr.	Patrick	Orozco	Ohlone/Costanoan		Watsonville	CA
Mr.	Alex	Ramirez	Ohlone/Costanoan		San Jose	CA
Ms.	Ella Mae	Rodriguez	Ohlone/Costanoan		Seaside	CA
Ms.	Linda	Yamane	Ohlone/Costanoan		Seaside	CA
Ms.	Jenny	Mousseaux	Ohlone/Costanoan; Chumash; Salinian		San Jose	CA
Mr.	Donald	Clark	OISC		Oakland	CA
Mr.	Hans	Reuvekamp	OPC		Oakland	CA
Ms.	Leola	Terry	Organized People of Elmhurst		Oakland	CA
Mr.	Oscar	Niemeth	Oscar Niemeth Towing		Lafayette	CA
Mr.	Matt	Hilton	P.R.T.I. Trucking		Richmond	CA
	T. M.	Mullan	Pacific Bell Construction		Hayward	CA
Mr.	Marvis	Daily	Pacific Builder		San Francisco	CA
Mr.	Mike	McDonnell	Pacific Coast Container		Oakland	CA
Mr.	Zeke	Grader	Pacific Coast Fed. of Fish Association		Sausilto	CA
Mr.	John	Cupp	Pacific Gas & Electric		Oakland	CA
Mr.	Michael	Schonberr	Pacific Gas & Electric		San Francisco	CA

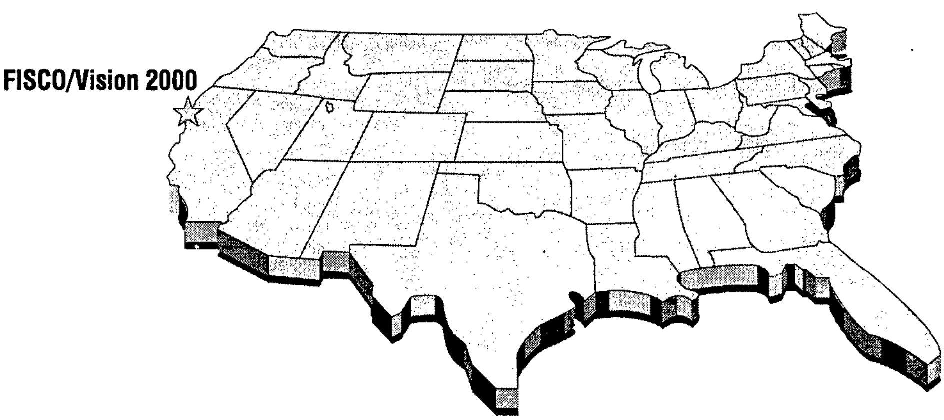
Title	First	Last	Organization	Branch	City	State
Ms.	Jane	Yura	Pacific Gas & Electric		Oakland	CA
Mr.	Geoffrey	Jue	Pacific Gas & Electric	East Bay Region	Oakland	CA
	C.A.	Gerstner	Pacific System		Stockton	CA
Mr.	Larry	Parker	Parker Warehouses, Inc.		San Francisco	CA
Mr.	Donald	Binggeli	Parkridge Estates Improvement Association		Oakland	CA
Ms.	Cass	Caulfield	Patrick Media	Public Affairs Representative	Oakland	CA
Mr.	Owen	Byrd	People for Open Space Greenbelt Alliance		San Francisco	CA
Ms.	Carolyn	Howard	Phoenix Neighborhood Group		Oakland	CA
			Point Reyes Bird Observatory		Stinson Beach	CA
Mr.	John	Walker	Poplar Advisory Council		Oakland	CA
Ms.	Loretta	Meyer	Port of Oakland		Oakland	CA
			Port of San Francisco		San Francisco	CA
Mr.	Bruce	Porter	Riteway Construction Company		Oakland	CA
Mr.	Larry	Robbins	Robbin & Associates		Oakland	CA
Ms.	Mary	MacDonald	Rockridge Community Planning Council		Oakland	CA
			Save San Francisco Bay Association		Oakland	CA
Mr.	Raymond	Gallagher	Scott's, Inc.		Walnut Creek	CA
Ms.	Meredith	Nizer	Sea Land Service Inc.		Oakland	CA
Mr.	Steve	Goldbeck	SF Bay Conservation & Development Comm.		San Francisco	CA
Mr.	William	Travis	SF Bay Conservation & Development Commission	Executive Director	San Francisco	CA
Mr.	Bill	Smith	Sierra Club		Alameda	CA
			Sierra Club	San Francisco Bay Chapter	Oakland	CA
Mr.	Steven	Renten	Skyline Boulevard Neighborhood Association		Oakland	CA
Ms.	Selma	Taylor	Small Business Development Center		Oakland	CA
Mr.	Michael	Rawson	Society of Alameda County		Oakland	CA
Ms.	Leigh	Jordan	Sonoma State University	CA Archaeological Survey	Rohnert Park	CA
Mr.	Mort	Howard	South of the Nimitz Improvement Council		Oakland	CA
Ms.	Susan	Boyle	South Prescott Neighborhood Association		Oakland	CA
Mr.	Ken	Derr	Southern Pacific Transportation		Oakland	CA
Mr.	Justin	Fox	Southern Pacific Transportation		San Francisco	CA
Mr.	Daryl	Maxey	Southern Pacific Transportation		Oakland	CA
Mr.	Mike	Ongerth	Southern Pacific Transportation		San Francisco	CA
Mr.	Jose	Arrendondo	Spanish Speaking Citizens' Foundation	Office of the Executive Director	Oakland	CA
			St. Andrew's Catholic Church		Oakland	CA
Fr.	Timothy	Johnson	St. Leo's Church		Oakland	CA
Rev.	Claude	Mason	St. Luke Church		Oakland	CA
Father	Charles	Smith	St. Patrick's Catholic Church		Oakland	CA
Ms.	Ruby	Baker	St. Patrick's Prescott Community Organization		Oakland	CA
Mr.	Ray	Holbrock	Stevedoring Services of America		Oakland	CA
Mr.	Oscar	Montgomery	Stonehurst Homeowners & Renters Association		Oakland	CA
Mr.	Marty	Frates	Teamsters Local 7		Oakland	CA
Mr.	Walter	Miles	Telegraph Area Neighborhood Group		Oakland	CA
Dr.	Patricia	Wolf	Telegraph Avenue Business Association		Oakland	CA
Mr.	Loren	Corey	Telegraph/Northgate Merchant and Building		Oakland	CA
Mr.	Thad	Shaffer	Temescal Neighbors Together		Oakland	CA
Mr.	Clyde	Brewster	The Elegant Corner, Inc.		Oakland	CA
			The Montclarion	News Room	Oakland	CA
Mr.	Spencer	Chen	Thirty-Eight Street Neighborhood Association		Oakland	CA

Title	First	Last	Organization	Branch	City	State
Mr.	Robert	Bergmann	TransBay Container Terminal		Oakland	CA
Capt.	S.	Murokuma	TransBay Container Terminal		Oakland	CA
Mr.	Michael	Porte	Transpacific Container Service Corp.		Oakland	CA
Ms.	Annie	Walker	Tuxedo Addition Neighborhood Association		Oakland	CA
Mr.	Michael	King	Union Pacific		Oakland	CA
Mr.	Mike	Chapman	Union Pacific Railroad		Omaha	NE
Mr.	John	Beuttler	United Anglers of America		Richmond	CA
Mr.	Otis	Parrish	United Indian Nations, Inc.		Oakland	CA
Ms.	Carol	Watson	United Way		Oakland	CA
Ms.	Ellie	Kinczel	Upper Zodiak Neighborhood Association		Oakland	CA
Mr.	Andy	Young	Urban Ecology		Oakland	CA
Mr.	Tiit	Veske	Veske Land Surveying		Redwood City	CA
Mr.	Jeffrey	Adams	Vicente Canyon Hillside Foundation		Berkeley	CA
Ms.	Anita	Hall	Vietnamese Fishermen Association of America		Oakland	CA
Mr.	David	MacDonald	Waste Management of Alameda County		Oakland	CA
Ms.	Jacquee	Castain	Webster Track Neighbors		Oakland	CA
Mr.	George	Burtt	West Oakland Commerce Association		Oakland	CA
Ms.	Nancy	Nadel	West Oakland Commerce Association		Oakland	CA
Mr.	Roger	Schmidt	West Oakland Commerce Association		Oakland	CA
Mr.	Bob	Tuck	West Oakland Commerce Association		Oakland	CA
Mr.	Bob	Williams	West Oakland District Board		Oakland	CA
			West Oakland Homeowners	Christian American Church	Oakland	CA
Mr.	Thomas	Joiner	West Oakland Mental Health Center		Oakland	CA
Ms.	Silva	Harr	West Oakland Neighbors		Oakland	CA
Ms.	Lular	Logan	West Oakland Neighbors		Oakland	CA
Ms.	Jodie	McGraw	West Oakland Neighbors		Oakland	CA
Ms.	Nancy	Nadel	West Oakland Neighbors		Oakland	CA
Mr.	Samuel	Rasheed	West Oakland Prescott	Neighborhood Association	Oakland	CA
Mr.	Ray	Kidd	West Oakland Redevelopoment		Oakland	CA
Mr.	Joe	Pardini	Western Container Transport		Oakland	CA
Ms.	Jackie	Cabasso	Western States Legal Foundation		Oakland	CA
Ms.	Gloria	Taylor	Westwood Gardens Residents Council		Oakland	CA
Ms.	Jody	Lerner	Wildlife Committee		Oakland	CA
Mr.	John	Yandell	Yandell's Truckaway		Oakland	CA
Mr.	Ed	Stellin	Yusen Terminals Inc.		Oakland	CA
			Individuals			
Ms.	Frances	Abram			Oakland	CA
.	A.	Aguilar			Oakland	CA
Ms.	Inez	Aldridge			Oakland	CA
Mr.	Wallace	Alexander			Oakland	CA
Mr.	Frank	Allen			Oakland	CA
Mr.	Walter	Allen			Oakland	CA
Ms.	Celeste	Andrews			Oakland	CA
Mr.	James	Anthony			Oakland	CA
Ms.	Thordie	Ashley			Oakland	CA
Mr.	Jesse	Bagwell			Oakland	CA
.	O.	Barner			Oakland	CA
Mr.	Bruce	Beasley			Oakland	CA
Ms.	Salome	Becerra			Oakland	CA
Ms.	Cornelia	Bell			Oakland	CA
Mr.	Mike	Blumenberg			San Leandro	CA
Mr.	David	Boatwright			Oakland	CA
Mrs.	Sarah	Bowden			Oakland	CA

Title	First	Last	Organization	Branch	City	State
Mr.	Ryan	Brooks			San Francisco	CA
Ms.	Marzetta	Brown			Oakland	CA
Mr.	Guy	Bryant, Esq.			San Francisco	CA
	W.	Buchanan			Oakland	CA
Mr.	Charles	Buckley			Oakland	CA
	P.J.	Calihan			Oakland	CA
Mr.	Horacio	Cardenas			Oakland	CA
Ms.	Regina	Carrie			Oakland	CA
Mr.	Dashinaye	Carter			Oakland	CA
Mr.	Lloyd	Chaney			Oakland	CA
Mr.	Siu Man	Cheung			Oakland	CA
Mr.	Phaly	Chuon			Oakland	CA
Mr.	Robert	Clark			Oakland	CA
Mr.	Jason	Clarke			Oakland	CA
	B.	Coates			Oakland	CA
Mr.	Bill	Coburn			Oakland	CA
Ms.	De Weena	Coleman			Oakland	CA
Mr.	Jesse	Cox			Oakland	CA
Ms.	Ann	Cyrus			Oakland	CA
Mr.	Al	Davis			Oakland	CA
Ms.	Bertha	Dean			Oakland	CA
Ms.	Connie	Dennis			Oakland	CA
Ms.	Jane	Dittman			Oakland	CA
Mr.	Otis	Dixon			Oakland	CA
Mr.	Mark	Dockum			Sacramento	CA
	J.T.	Dorn			Oakland	CA
Mr.	Edwin	Dreux			Oakland	CA
Ms.	Orinda	Edwards			Oakland	CA
Ms.	Gail	Eisner			Oakland	CA
Ms.	Patricia	Elliott			Oakland	CA
Mr.	Alberto	Escovedo			Oakland	CA
Ms.	Joan	Fitzlinger			Oakland	CA
Mr.	Derrill	Floyd			Oakland	CA
Mr.	Lawrence	Fontenette			Oakland	CA
Mr.	Artemio	Garcia			Oakland	CA
Mr.	John	Geddie			Albuquerque	NM
Mr.	Noel	Gillett			Oakland	CA
	J.C.	Gomes			Oakland	CA
Mr.	Octaviano	Gomez			Oakland	CA
Ms.	Margaret	Gordon			Oakland	CA
Mr.	Dan	Gottsegen			Oakland	CA
Mr.	Manuel	Granillo			Oakland	CA
Mr.	Tekle Kinfu	Hadera			Oakland	CA
Mr.	Mitzine	Halcrombe			Oakland	CA
Mr.	Andrew	Harris			Oakland	CA
Ms.	Otilia	Hernandez			Oakland	CA
Mr.	Hayward	Hill			Oakland	CA
	W.	Hodge			Oakland	CA
Ms.	Majorie	Holloway			Oakland	CA
Mr.	Don	Holsten			Oakland	CA
Ms.	Bernadette	Howard			Oakland	CA
Mr.	Jerrue	Huffen			Oakland	CA
Mr.	Charles	Hunter			Oakland	CA
Mr.	Ed	Johnson			Oakland	CA
Mr.	Marshall	Johnson			Oakland	CA
Mr.	Thomas	Johnson			Oakland	CA
Mr.	Berish	Jones			Oakland	CA
Mr.	Genner	Jones			Oakland	CA
Mr.	Herman	Jones			Oakland	CA
	J.D.	Jones			Oakland	CA
Ms.	Mary	Jones			Oakland	CA
Ms.	Danielle	Joseph			Oakland	CA
Mr.	Hashim	Kamau			Oakland	CA
Mr.	James	Kay			Oakland	CA
Ms.	Patty	Kinane			Oakland	CA

Title	First	Last	Organization	Branch	City	State
	T.	Lattanaphom			Oakland	CA
Mr.	Oscar	Lehnus			Oakland	CA
Mr.	Julio	Leto			Oakland	CA
Mr.	Raymond	Lewis			Oakland	CA
Mr.	Bill	Little			Oakland	CA
Ms.	Esther	Mabrey			Oakland	CA
Mr.	Geo	Mack			Oakland	CA
Mr.	Ralph	MacWilliams			Oakland	CA
Mr.	Kim	Mak			Oakland	CA
Mr.	Buck	Marshall			Oakland	CA
Mr.	Douglas	Marshall			Oakland	CA
Mr.	Anthony	Mason, Sr			Oakland	CA
Ms.	Vivian	Massingale			Oakland	CA
Ms.	Lola	McKinney			Oakland	CA
	J.	McMahon			Oakland	CA
Mr.	Rin	Meas			Oakland	CA
	N.	Mendoza			Oakland	CA
Mrs.	Earl	Metcalf			Oakland	CA
Mr.	Dahn	Midora			Oakland	CA
Ms.	Liz	Moore			Oakland	CA
Ms.	Erika	Mora			Oakland	CA
Mr.	Richard	Morgan			Oakland	CA
Ms.	Ann	Morris			Denver	CO
Ms.	Alberta	Moses			Oakland	CA
Mr.	Shomari	Mustafa			Oakland	CA
Mr.	David	Nesmith			Oakland	CA
Mr.	Phorn	Ngor			Oakland	CA
Mr.	King	O'Neal			Oakland	CA
Ms.	LaJeane	Onic			Oakland	CA
Mr.	Chris	Patterson			Oakland	CA
Ms.	Mabel	Peoples			Oakland	CA
Mr.	Chanh	Phuong			Oakland	CA
Ms.	Dorothy	Pierre			Oakland	CA
Mr.	Eddie	Pines			Oakland	CA
Ms.	Nancy	Platford			Oakland	CA
Ms.	Carola	Polakov			Oakland	CA
Ms.	Kathryn	Porter			Oakland	CA
Ms.	Renteria	Ramos			Oakland	CA
Mr.	Henry	Renteria			Oakland	CA
Ms.	Laura	Robinson			Oakland	CA
Mr.	Jesus	Rodriguez			Oakland	CA
Mr.	Manuel	Rodriguez			Oakland	CA
Mr.	Jas	Roundtree			Oakland	CA
Ms.	Christine	Saed			Oakland	CA
Mr.	Fuey Chiang	Saephan			Oakland	CA
Mr.	Javier	Sanchez			Oakland	CA
	T.	Sanchez			Oakland	CA
Mr.	Peter	Sasaki			Oakland	CA
Mr.	Edwin	Schenderlein			Oakland	CA
Mr.	Greg	Scott			Oakland	CA
	J.	Sikand			Oakland	CA
Mr.	Billy	Simmons			Oakland	CA
Mr.	Cleothas	Simmons			Oakland	CA
Ms.	Lillian	Simril			Oakland	CA
Mr.	George	Skinner			Oakland	CA
Ms.	Bea	Slater			San Rafael	CA
Mr.	Derrick	Smith			Oakland	CA
Mr.	Kha	Sok			Oakland	CA
Mr.	Sen	Som			Oakland	CA
Mr.	John	Spikula			Oakland	CA
Ms.	Mary Elizabeth	Steiner			Oakland	CA
Mr.	Lewis	Stills			Oakland	CA
Ms.	Rubie Lee	Taylor			Oakland	CA
Mr.	Stephen	Telesmanic			Oakland	CA

Title	First	Last	Organization	Branch	City	State
Mr.	Sokhom	Tep			Oakland	CA
Mr.	Yem	Tho			Oakland	CA
Mr.	Claud	Thomas			Oakland	CA
Ms.	Cornelia	Thomas			Oakland	CA
Ms.	Donna	Thomas			Oakland	CA
Mr.	Metzger	Thomas			Oakland	CA
Mr.	James	Tolan			Oakland	CA
Mr.	Joe	Tolbert			Oakland	CA
Mr.	Rogelio	Torres			Oakland	CA
Mr.	Willie	Tramble			Oakland	CA
Mr.	Dieu	Tran			Oakland	CA
Ms.	Barbara	Turner			Oakland	CA
Mr.	Myrl	Vairy			Oakland	CA
Mr.	Theodosia	Valrey			Castro Valley	CA
Ms.	Hillery	Vaughn			Oakland	CA
Mr.	Willie	Warfield			Oakland	CA
Mr.	Rufus	Washington			Oakland	CA
	A.	Wells			Oakland	CA
Mr.	Arie	Wells			Oakland	CA
Mr.	Craig	Williams			Oakland	CA
Mr.	Henry	Williams			Oakland	CA
Mr.	Martin	Williams			Oakland	CA
Ms.	Mary	Williams			Oakland	CA
Mr.	Ralph	Williams			Oakland	CA
Mr.	Walter	Williams			Oakland	CA
Ms.	Ruthie	Worsham			Oakland	CA
Ms.	Debra	Wright			Oakland	CA
Mr.	Seang	Yem			Oakland	CA
Mr.	Yue Kang	Zhang			Oakland	CA
			Libraries			
			Oakland Public Library	West Oakland Branch	Oakland	CA
			Oakland Public Library	Main Library	Oakland	CA
			Newspapers			
Ms.	Kathleen	Kirkwood	Alameda Times Star		Oakland	CA
			Oakland Tribune	City Desk	Oakland	CA
			Oakland Post		Oakland	CA
			San Francisco Chronicle	News Room	San Francisco	CA



11.0 GLOSSARY AND INDEX

CHAPTER 11
GLOSSARY AND INDEX

11.1 GLOSSARY

100-year flood zone	Land area having a one percent chance of being flooded during a given year.
A-weighted decibel (dBA)	A number representing the sound level that is frequency weighted according to a prescribed frequency response established by the American National Standards Institute (ANSI-S1.4-1971) and that accounts for the response of the human ear.
Aesthetics	The perception of beauty.
Air pollutant emissions	The amount, usually stated as a weight, of one or more specific compounds introduced into the atmosphere by a source or group of sources. In practice, most pollutant emissions data are presented as emission rates, or the amount of pollutants emitted during a specified increment of time or during a specified increment of emission source activity. Typical measurement units for emission rates on a time basis include pounds per hour, pounds per day, or tons per year. Typical measurement units for emission rates on a source activity basis include pounds per thousand gallons of fuel burned, pounds per ton of material processed, and grams per vehicle mile of travel.
Ambient air quality	The atmospheric concentration of a specific compound (amount of pollutants in a specified volume of air) at a particular location, determined by the way wind patterns, precipitation patterns, and chemical reactions affect pollutants in the atmosphere. Data are generally reported as a mass per unit volume (e.g., micrograms per cubic meter of air) or as a volume fraction (e.g., parts per million by volume). Measurements of particulate matter concentrations normally are reported in units of micrograms per cubic meter.

Ambient air quality standards	Standards established on a state or federal level that define the limits for airborne concentrations of designated criteria pollutants (nitrogen dioxide, sulfur dioxide, carbon monoxide, ozone, lead) to protect public health with an adequate margin of safety (primary standards) and public welfare, including plant and animal life, visibility, and materials (secondary standards).
Aquifer	A layer of underground sand, gravel, or spongy rock in which water collects.
Arterial	A roadway from which local routes branch.
Artifact	Any product or human cultural activity; more specifically, any tools, weapons, or artwork found in archeological contexts.
Asbestos	A carcinogenic substance formerly used widely as an insulation material by the construction industry; often found in older buildings.
Assemblage	The complete inventory of artifacts from a single defined archaeological unit (such as a stratum or component).
Attainment area	An area that meets the National Ambient Air Quality Standards for a criteria pollutant under the Clean Air Act or that meets state air quality standards.
Berth length	Berth length is the linear distance measured of a marine terminal landward from the water's edge.
Best Management Practices	Includes schedule of activities, prohibition of practices, maintenance procedures, and other management practices to prevent or reduce the pollution of waters of the United States. BMPs also include treatment requirements, operating procedures, and practices to control plant site runoff spillage or leaks, sludge or waste disposal, or drainage from raw material storage.
California Environmental Quality Act (CEQA)	CEQA is the California equivalent of NEPA. It requires an environmental review of projects deemed to have significant environmental impacts and that require state or local government approval or that are publicly funded projects.
Capacity (transportation)	The maximum rate of flow at which vehicles can be reasonably expected to traverse a point or uniform segment of a lane or roadway during a specified period under prevailing roadway, traffic, and control conditions.
Capacity (utilities)	The maximum load a system is capable of carrying under existing service conditions.
Caretaker	The US Navy process of maintaining a closed facility.
Clean Air Act (CAA)	The CAA legislates that air quality standards set by federal, state, and county regulatory agencies establish maximum allowable emission rates and pollutant concentrations for sources of air pollution on federal and private property. Also regulated under this law is proper removal and safe disposal of asbestos from buildings other than schools.

Clean Water Act (CWA)	The CWA is the major federal legislation concerning improvement of the nation's water resources. It provides for development of municipal and industrial wastewater treatment standards and a permitting system to control wastewater discharges to surface waters. The act contains specific provisions for regulation of ships' wastewater and disposal of dredge spoils within navigable waters. Section 404 of the act regulates disposal into waters of the United States, including wetlands.
Climate	The prevalent or characteristic meteorological conditions (and their extremes) of any given location or region.
Community Environmental Response Facilitation Act (CERFA)	A 1992 amendment to CERCLA, CERFA expedites the identification of uncontaminated real property within closing facilities that offer the greatest opportunity for reuse and redevelopment.
Community noise equivalent level (CNEL)	Noise compatibility standard established by California Administrative Code, Title 21, Section 5000. The CNEL is the 24-hour average, A-weighted sound level with a 5 dB penalty added to levels occurring between 10:00 PM and 7:00 AM to account for increased annoyance due to noise during the night.
Comprehensive Environmental Response, Compensation, And Liability Act (CERCLA)	CERCLA, also known as Superfund, was enacted in 1980 to ensure that a source of funds is available to clean up abandoned hazardous waste dumps, compensate victims, address releases of hazardous materials, and establish liability standards for responsible parties. The act also requires creation of a National Priorities List, which sets forth the sites considered to have the highest priority for cleanup under Superfund.
Container	Refers to containerized cargo means general cargo packed in standard size weather tight boxes. Standard container length is twenty feet and height is either nine or nine and one-half feet. Containers are commonly called "TEUs," shorthand for twenty-foot equivalent units. Cargo remains in container from origin to destination.
Contamination	The degradation of naturally occurring water, air, or soil quality either directly or indirectly as a result of human activities.
Contributing resource	A resource (e.g., a building) that is regarded as part of the historic district and is listed in or eligible for listing in the National Register.
Council On Environmental Quality (CEQ)	Established by NEPA, the CEQ consists of three members appointed by the president. CEQ regulations (40 CFR 1500-1508, as of July 1, 1986) describe the process for implementing NEPA, including preparation of environmental assessments and environmental impact statements, and timing and extent of public participation.
Cultural	(1) The nonbiological and socially transmitted system of concepts, institutions, behavior, and materials by which a society adapts to its effective natural and human environment. (2) Similar or related assemblages of approximately the same age from a single locality or district, thought to represent the activities of one social group.

Cultural history	The archeological sequence of cultural activity through time, within a defined geographic space or relating to a particular group.
Cultural resources	Includes any object, site, area, building, structure, or place that is archeologically or historically significant, or that exhibits traditional cultural value (e.g., properties sacred to Native Americans or other ethnic groups.) The definition includes assets significant in the architectural, scientific, engineering, economic, agricultural, educational, social, political, military, or cultural annals of California.
Cumulative impacts	The combined impacts resulting from all programs occurring concurrently at a given location.
Day-night average sound level (Ldn)	The 24-hour average-energy sound level expressed in decibels, with a 10 decibel penalty added to sound levels between 10:00 PM and 7:00 AM to account for increased annoyance due to noise during the night.
Decibel (dB)	A unit of measure on a logarithmic scale that describes the magnitude of a particular quantity of sound pressure or power with respect to a standard reference value.
Defense Environmental Restoration Program (DERP)	DERP is the Department of Defense hazardous materials cleanup program. It is separate from CERCLA but follows the same basic procedures, including the same regulatory oversight. The goals of the program are to identify, investigate, remediate, and clean up contamination from hazardous substances and pollutants. The funding for DERP is independent of Superfund.
Developed	Said of land, lot, parcel, or area that has been built upon or where public services have been installed prior to residential or commercial construction.
Direct impact	Effects resulting solely from the proposed program.
Disposal	Legal transfer of Navy property to other ownership.
Drayage	Hauling cargo by truck
EFA West	The US Navy Engineering Field Activity West located in San Bruno, California, provides support for Navy bases closing in the San Francisco bay area.
Effluent	Waste material discharged into the environment.
Endangered species	A plant or animal class with potential for extinction throughout all or a significant portion of its range.
Endangered Species Act (ESA)	The ESA requires federal agencies to determine the effects of their actions on endangered species and their critical habitats.
Environmental Baseline Survey	A report prepared as part of the base closure process to document environmental conditions at a military base.

Environmental impact statement (EIS)	A document required of federal agencies by NEPA for major projects or legislative proposals significantly affecting the environment. A tool for decision-making, the EIS describes the positive and negative effects of the undertaking and lists alternative actions.
Environmental justice	The examination of project induced disproportionate human health or environmental adverse impacts upon minority and low-income populations. Federal agencies are required to examine environmental justice impacts pursuant to President Clinton's Executive Order 12898.
Equivalent noise levels (Leq)	Equivalent noise levels are used to develop single-value descriptions of average noise exposure over various periods.
Ethnography	The direct anthropological study of living human groups or the study of recent historically documented groups.
Fault	Fracture in earth's crust accompanied by a displacement of one side of the fracture with respect to the other and in a direction parallel to the fracture.
Feasibility study (FS)	The feasibility study identifies and evaluates all applicable site cleanup alternatives. For most sites, a long list of alternatives is possible. A risk assessment is performed as part of the study to quantify the level of risk to the public and environment posed by the site. Often, the risk assessment determines which alternative is selected for final remediation. Each alternative is evaluated for effectiveness in protecting human health and the environment, ease of implementation, and overall cost. Typically, the remedial investigation and feasibility study are performed concurrently.
Feature	A large, complex artifact or part of a site, such as a hearth, cairn, housepit, rock alignment, or activity area.
Ground water	Water within the earth that supplies wells and springs.
Hazard ranking system (HRS)	This system provides a uniform method of scoring or ranking the potential risk of a facility site where a hazardous substance has been present. The EPA developed the HRS to prioritize its cleanup efforts. The EPA evaluates the draft HRS packages and proposes any facilities scoring over 28.5 or higher for inclusion on the National Priorities List (NPL). Facilities listed on the NPL receive the highest priority.
Hazardous material	A substance or mixture of substances that poses a substantial risk or potential risk to human health or the environment. Any substance designated by the EPA to be reported if a designated quantity of the substance is spilled in the waters of the United States or if it is otherwise released into the environment.

Hazardous waste	A waste or combination of wastes that, because of quantity, concentration, or physical, chemical, or infectious characteristics, may either cause or significantly contribute to an increase in mortality or an increase in serious irreversible illness; or may pose a substantial hazard or potential hazard to human health or the environment when improperly treated, stored, transported, disposed of, or otherwise managed. Regulated under RCRA.
Hazardous waste accumulation area	An area where hazardous wastes may be stored for up to 90 days.
Hazardous waste storage area	An area where hazardous waste may be stored for up to one year.
Historic (cultural resources)	A period after the advent of written history dating to the time of first Euro-American contact in an area. Also refers to items primarily of Euro-American manufacture.
Impacts	An assessment of the meaning of changes in all attributes being studied for a given resource; an aggregation of all the adverse effects, usually measured using a qualitative and nominally subjective technique.
Indian tribe	Any tribe, nation, or other organized group, as defined in or established pursuant to the Alaska Native American Claims Settlement Act.
Infrastructure	The basic installations and facilities on which the continuance and growth of a locale depend (roads, schools, power plants, transportation, and communication systems).
Installation Restoration Program (IRP)	A program, established by the Department of Defense to meet requirements of CERCLA of 1980 and the Superfund Amendments and Reauthorization Act of 1986, that identifies, assesses, and cleans up or controls contamination from past hazardous waste disposal practices and hazardous material spills.
Intermodal terminal	A marine terminal with efficient links to rail and truck transportation infrastructure.
Land use plans and policies	Guidelines adopted by governments to direct future land use within their jurisdictions.
Level of service (LOS)	In transportation analysis, a qualitative measure describing operational conditions within a traffic stream and how they are perceived by motorists or pedestrians. In public services, a measure describing the amount of public services available to community residents, generally expressed as the number of personnel providing service per 1,000 population.
Lift	The term "lift" refers to the movement of a single unit of cargo on or off a particular intermodal facility such as a marine vessel, railcar, or truck.
Liquefaction	The transformation during an earthquake of unconsolidated water-saturated sediment into a liquid form.

Long term	Impacts that would occur over an extended period, whether they start during the construction or operations phase. Most impacts from the operations phase are expected to be long-term since program operations essentially represent a steady-state condition (i.e., impacts resulting from actions that occur repeatedly over a long period). However, long-term impacts could also be caused by construction activities if a resource is destroyed or irreparably damaged or if the recovery rate if the resource is very slow.
Marine terminal	Public, private, proprietary, or a military waterfront facility utilized for the receipt or shipment of waterborne cargo.
Marine terminal depth	Marine terminal depth is the measures distance of the terminal facility landward from the water's edge.
McKinney Act	The McKinney Act gives recognized providers of assistance to the homeless a high priority in acquiring unneeded land and buildings on federal properties. The property can be used only for the homeless and only for two years. Homeless providers must be able to finance upgrades of facilities, pay a proportionate share of municipal service costs, and fund its program operations.
Migratory Bird Treaty Act	This act prohibits the taking or harming of a migratory bird, its eggs, nests, or young without the appropriate permit.
Mitigation	A method or action to reduce or eliminate program impacts.
Modern	An architectural style influenced by the Art Deco and Streamline Modern movements of the 1930s. The Modern style features cubistic forms and minimal detail to accentuate the forms.
Mole	A bermed railroad track.
Multi-family housing	Townhouse or apartment units that accommodate more than one family though each dwelling unit is occupied by one household only.
National Environmental Policy Act (NEPA)	Public Law 91-190, passed by Congress in 1969, established a national policy designed to encourage consideration of the influence of human activities on the natural environment. When referred to as NEPA in this report, NEPA includes the current law and implementing guidelines (CCR sec. 15000 et seq.), the Council on Environmental Quality (CEQ) regulations on implementing NEPA, Navy guidelines (OPNAVINST 5090.1B), and BRAC 1990, as amended by the 1993 BRAC closure process. NEPA procedures require that environmental information be made available to the public before decisions are made.
National Historic Preservation Act (NHPA)	The NHPA protects cultural resources. Section 106 of the act requires a federal agency to take into account the potential effect of a proposed action on properties listed on or eligible for listing on the National Register of Historic Places.

National Pollution Discharge Elimination System (NPDES)	The NPDES is a provision of the Clean Water Act that prohibits discharge of pollutants into waters of the United States unless a special permit is issued by the US Environmental Protection Agency or by the state.
National Priorities List (NPL)	A list of sites (federal and state) where releases of hazardous materials may have occurred and may cause an unreasonable risk to the health and safety of individuals, property, or the environment.
National Register of Historic Places	A federally maintained register of districts, sites, buildings, structures, architecture, and culture.
National Register resources	Properties listed on the National Register of Historic Places, properties formally determined to be eligible for listing on the National Register, and those properties appearing to qualify for listing on the National Register.
Native American Graves Protection and Repatriation Act (NAGPRA)	NAGPRA defines the ownership and control of Native American human remains and associated funerary objects discovered or recovered from federal or tribal land.
Native Americans	Used in the collective sense to refer to individuals, bands, or tribes who trace their ancestry to indigenous populations of North America prior to Euro-American contacts.
Native vegetation	Plant life that occurs naturally in an area without agricultural or cultivational efforts. It does not include species that have been introduced from other geographical areas and have become naturalized.
Natural Diversity Database	A state of California geographical list of species with special status.
Natural gas	A natural fuel containing primarily methane and ethane that occurs in certain geologic formations.
Naval Supply Center Oakland	The former name of FISCO.
Nitrogen oxides (NO_x)	Gases formed primarily by methane and ethane that occur in certain geologic formations.
Noise	Any sound that is undesirable because it interferes with speech and hearing or is intense enough to damage hearing or is otherwise annoying.
Noncontributing resource	A resource (e.g., a building) that is located within the boundaries of a historic district but that does not contribute to the significance of the district. A "non-contributing" building or structure is not eligible for listing in the National Register.
Nonnative species	A plant or animal class that has invaded or that has been introduced into an area.

Organotin	A family of alkyl tin compounds widely used as stabilizers for plastics, especially rigid vinyl polymers used as piping, construction aids, and cellular structures. Some have catalytic properties. They include butyl tin trichloride, dibutyltin oxide, and various methyltin compounds. They are both liquids and solids. All are highly toxic.
Ozone	A major ingredient of smog. Ozone is produced from reactions of hydrocarbons and nitrogen oxides in the presence of sunlight and heat.
Particulate matter (PM_{10})	PM_{10} is a fractional sampling of particle sizes that approximate the extent to which particles with aerodynamic equivalent diameters smaller than fifty (50) microns penetrate to the lower respiratory tract. The "10" in PM_{10} refers to a 50 percent collection efficiency size range, not an upper size limit.
PCB-contaminated equipment	Equipment that contains a concentration of polychlorinated biphenyls (PCBs) from 50 to 449 ppm or greater. Disposal and removal are regulated by the US EPA.
Peak hour	The hour of highest traffic volume on a given section of roadway between 7:00 AM and 9:00 AM or between 4:00 PM and 6:00 PM.
Permit	An authorization, license, or equivalent control document to implement the requirements of an environmental regulation.
Phase	A distinctive archeological unit representing a fairly brief interval within a locality or region. A phase may be a single component at one site or a prolonged occupation of numerous related sites.
Polychlorinated biphenyls (PCBs)	Any of a family of industrial compounds produced by chlorination of biphenyl. These compounds are noted chiefly as an environmental pollutant that accumulates in organisms and concentrates in the food chain with resultant pathogenic and teratogenic effects. PCBs decompose very slowly.
Potable water	Water suitable for drinking.
Prehistory/prehistoric	The archeological record of nonliterate cultures; the cultural past before the advent of written records.
Preliminary assessment (PA)	The preliminary assessment identifies areas of potential contamination and evaluates each area to determine if a threat to human health or the environment exists. A preliminary assessment report is developed from readily available information, such as past inventory records, aerial photographs, employee interviews, existing analytical data, and a site visit. A preliminary assessment may recommend no further action, additional work, or a removal action.
Primary air pollutants	Primary pollutants are those emitted directly into the atmosphere such as carbon monoxide, sulfur dioxide, lead particulates, and hydrogen sulfide.
Radon	A colorless naturally occurring, radioactive, inert gaseous element formed by radioactive decay of radium in soil or rocks.

Record of decision (ROD)	The document prepared under the federal government that documents the reasoning behind the decision.
Recycling	The process of minimizing the generation of waste by recovering usable products that might otherwise become waste.
Region of influence (ROI)	For each resource, the region affected by the proposed action or alternatives and used for analysis in the affected environment and impact discussion.
Remedial action (RA)	During a remedial action, selected cleanup technology is implemented. A remedial action can be as simple as soil excavation or as complicated as a complete ground water treatment system that may operate for many years. Remedial action work plans for long-term remediations will include operation and maintenance (O&M) plans. O&M efforts continue until the cleanup is complete.
Remedial action plan (RAP)	The document prepared under the state government that documents the reasoning behind the selection of a particular cleanup alternative.
Remedial design (RD)	After the RAP/ROD is signed, remedial design can begin. During the RD phase, specific construction parameters and equipment specifications are prepared for the selected cleanup alternative.
Remedial investigation (RI)	This investigation is performed to more fully define the nature and extent of the contamination at a site and to evaluate possible methods of cleaning up the site. During the investigation, ground water, surface water, soil, sediment, and biological samples are collected and analyzed to determine the type and concentration of each contaminant. Samples are collected at different areas and depths to help determine the spread of contamination.
Removal actions	In the event of an immediate threat or potential threat to human health or the environment, a short-term mitigating or cleanup action may be implemented. The goal of the removal action is to isolate the contamination hot spot and its source from all biological receptors. Usually, removal actions do not completely clean up a site, and additional remediation steps are required.
Resource Conservation And Recovery Act (RCRA)	RCRA was enacted in 1976 as the first step in regulating the potential health and environmental problems associated with hazardous waste disposal. RCRA and the regulations developed by EPA to implement its provisions provide the general framework of the national hazardous waste management system, including the determination of whether hazardous wastes are being generated, techniques for tracking wastes to eventual disposal, and the design and permitting of hazardous waste management facilities.
Retrocession	The process of transferring land from federal control to state control.
Reversionary/ nonreversionary	Reversionary applies to land designated to revert to Port of Oakland control after FISCO closure. Nonreversionary applies to land that after FISCO closure, would be subject to the DOD screening process for surplus property.

Runoff	The noninfiltrating water entering a stream or other conveyance channel shortly after a rainfall event.
Safe Drinking Water Act (SDWA)	The SDWA establishes the amount of concentrated contaminants allowable in public drinking water. The SDWA also requires the review of federal agencies that maintain public water supply or contribute to ground water contamination. Reviews must follow all applicable requirements issued by the state.
Secondary air pollutants	Secondary pollutants, such as ozone, nitrogen dioxide, and sulfate particles, are formed through chemical reactions in the atmosphere; these chemical reactions usually involve primary pollutants, normal constituents of the atmosphere, and other secondary pollutants.
Seiches	An increase in the water level of large bodies of water caused by the unidirectional pushing of surface water by wind, storms, or earthquakes.
Seismicity	Relative frequency and distribution of earthquakes.
Sensitive habitats	Vegetative communities that provide habitat for a diversity of species.
Short term	Transitory effects of the proposed program that are of limited duration and that are generally caused by construction activities or operations start-up.
Significance	The importance of a given impact on a specific resource as defined under the Council on Environmental Quality regulations.
Single-family housing	A conventionally built house consisting of a single dwelling unit occupied by one household.
Site	The location of past cultural activity; a defined space with more or less continuous archeological evidence.
Site discovery (SD)	A site is an area that has or has had the potential for a hazardous substance release. A single facility may contain several sites to be studied. Potential sites are occasionally discovered by searching through records or during construction projects.
Site inspection (SI)	An inspection conducted after a preliminary assessment when additional information is needed to evaluate the site. The collection and analysis of soil, sediment, and surface or ground water samples may help determine the need for further study. The SI collects any information needed for hazard ranking. The SI may recommend a site for no action, further study, or an immediate removal action.
Soil	A natural body consisting of layers or horizons of mineral and/or organic constituents of variable thickness and differing from the parent material in their morphological, physical, chemical, mineralogical, and biological characteristics.
Soil types	A category or detailed mapping unit used for soil surveys based on phases or changes within a series (e.g. slope, salinity).

Solid waste management	Supervised handling of waste materials from their source through recovery processes to disposal.
State Historic Preservation Officer (SHPO)	The official within each state, authorized by the state at the request of the secretary of the interior, to implement the National Historic Preservation Act.
Stratigraphy	The study of cultural and natural strata or layers in archeological and geological deposits, particularly with the aim of determining the relative age of strata.
Superfund Amendments And Reauthorization Act (SARA)	SARA was enacted in 1986 to increase the Superfund to $8.5 billion, to modify contaminated site cleanup criteria scheduling, and to revise settlement procedures. It also provides a fund for leaking underground storage tank cleanups and a broad new emergency planning and community right to know program.
Surface water	All water naturally open to the atmosphere and all wells, springs, or other collectors which are directly influenced by surface water.
Threatened species	Plant and wildlife classes likely to become endangered in the foreseeable future.
Toxic	Harmful to living organisms.
Toxic Substances Control Act (TSCA)	TSCA provides authority to test and regulate chemicals to protect human health. Substances regulated under TSCA include asbestos and PCBs.
Transfer	Deliver US government property accountability to another federal agency.
Tribelet	The basic, autonomous, self-governing, and independent sociopolitical group in aboriginal California; an aggregation of several villages under the authority of a single chief.
Tsunami	A wave caused by an underwater earthquake with the potential to have great destructive force upon reaching land.
US Environmental Protection Agency	The independent federal agency established in 1970 to regulate federal environmental matters and to oversee the implementation of federal environmental laws.
Vision 2000 Program	The Port of Oakland development program to increase marine terminal capacity and construct a joint intermodal terminal.
Waters of the United States	Waters that are subject to Section 404 of the Clean Water Act. These include both deep water aquatic habitats and special aquatic sites, including wetlands.

Wetlands

Areas that are inundated or saturated with surface or groundwater at a frequency and duration sufficient to support a prevalence of vegetation typically adapted for life in saturated soil. This classification includes swamps, marshes, bogs, and similar areas. Jurisdictional wetlands are those wetlands that meet the vegetation, soils, and hydrology criteria under normal circumstances (or that meet the special circumstances as described in the US Army Corps of Engineers, 1987 wetland delineation manual where one or more of these criteria may be absent) and are a subset of "waters of the United States."

Zoning

The division of a municipality into districts for the purpose of regulating land use, types of buildings, required yards, necessary off-street parking, and other prerequisites to development. Zones are generally shown on a map and the text of the zoning ordinance specifies requirement for each zoning category.

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